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THE CULTIVATOR.

THIRD] TO IMPROVE THE SOIL AND THE MIND. [SERIES.

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The Cultivator & Country Gentleman.

MUCK OR PEAT AS MANURE.

In many sections of the country there are large deposits of peat or muck that might be turned to a most valuable account as a fertilizer; but it appears that where these deposits are made, many of the farmers have not learned its value. It is hardly to be expected that where farmers do not duly appreciate and husband their yard and stable manure, they will give time to digging manure from muck beds, yet the time will come when necessity will compel the use of every available material for restoring the lost fertility of the overworked and the unfed soil. Large sums of money are now paid by the farmers in the older portions of the country for guano, bones and other fertilizers that might in a great measure have been saved had those who previously cultivated the soil applied with economy all the enriching materials that were naturally produced on their farms. But it requires time to correct errors and remove old established prejudices. In a new country, like many portions of the United States, farmers are not easily made to believe that their lands will ever become poor, or that manure will ever be worth the labor of hauling and applying to their crops. This however, is not the case in many parts of the older States; the lands are so much reduced by cropping without manure that the present returns will hardly pay the labor of cultivation. In many of these localities peat beds abound.

These deposits of vegetable matter differ very materially in their character, according to location and the nature of their formation. Some are almost purely vegetable deposit, in what were once ponds, some of them of very considerable depth, sometimes exceeding 20 feet, the accumulation of untold ages. These deposits are composed chiefly of decayed leaves, roots and branches of shrubs and grasses grown in and around the particular locality. As these ponds become partly filled, swamp bushes occupied their edges, and finally covered their entire surfaces, the deposit of leaves continuing for ages longer, until they rise a foot or two above the surface of the water. After these swamps have been cleared, and a few inches of the surface of the peat have been removed, the deposit is found in regular strata, and when thrown out and partly dried it may be opened or divided, each strata exhibiting the form and framework of the leaves as perfect as when they fell from the trees, though they may be thousands of years old. When these leaves are dried they are readily reduced to fine powder. These deposits are of a red brown or snuff color. This kind of peat is highly carbonaceous in its character, and when dried and burned in a furnace or stove produces a heat of great intensity. In some parts of the country it is used for fuel in certain large manufacturing establishments. Patents have recently been issued for pressing out the water and forming the material into convenient blocks for fuel.

Peat of this character I have used for manure for many years, keeping a constant supply in the pig-pen, stables and yards, and thereby increasing the annual stock several times in quantity and value. With ordinary care two loads of muck added to the yards to one of stable manure, is fully equivalent in value to three loads of stable manure. With stables properly constructed so that a supply of peat can be employed to absorb all the liquid portions that fall from the animals, which otherwise generally goes to waste, that portion may be made of more value than the entire accumulation of solid manure from the same animals.

Peat of this description being deposited generally in basins without any outlet for the water, requires to be dug in the dry part of the summer, for at other seasons of the year water greatly interferes with the operation. After it has been thrown out, and has parted with the greater portion of the water it contained, it should be protected from the weather. It should be thrown up on boards to prevent contact from the moist earth, as it absorbs moisture as readily as a sponge.

In many parts of the country where these deposits of organic materials are found, the soil of the surrounding country is chiefly sandy or gravelly, and liable to suffer from drouth in midsummer. These soils are easily worked, and in wet seasons, with a good supply of manure, yield fair crops, and often heavy crops. Soils of this character are wonderfully benefitted by the application of a good supply of well prepared muck

Its power to absorb and retain moisture in the soil exceeds that of any other material that can be applied. It not only retains moisture, but also the enriching substances naturally within itself, and that which has become incorporated with it in the stable and yards, and gives it off as the crops require it, when ordinary manures leach through these porous soils, and their virtue is soon lost. It otherwise tends to meliorate the texture and improve the physical character of the soil. It may be regarded as one of the wise provisions of nature that these large deposits of enriching material are found near such soils as are most benefitted by their application.

There is another kind of muck which is found in large quantities in various parts of the country, generally along rivers and small streams emptying into rivers or bays, which differs very materially from that which I have described. It contains none of the deposit of forest leaves, but is entirely of a boggy character, chiefly the product of different species of coarse wild grasses. These bogs are usually a foot or two above the water. The surface is composed of the roots of living grasses; below this is often several feet of the same material in a dead or decaying state, though being excluded from the air, it retains its tough fibrous character for a long time. With this there is sometimes a small admixture of mud deposited by freshets and high tides. Its tough and fibrous character requires time to decompose and reduce it to a fit condition for application to the soil. Of its value as a manure, compared with the peat above described, requires chemical analysis to determine, and different deposits of both, differ in character, according to the mineral and other foreign substances incorporated with it from the surrounding country. But judging from the effects of some that I have seen applied to crops, it can hardly be inferior to it. On a tract of land not exceeding 60 acres, devoted to a profitable nursery business, the operations of which I am familiar with, from 1,000 to 1,500 cart loads of this bog material are annually prepared and applied, without which the establishment could hardly be sustained. There are several hundred acres of this bog earth lying in a solid body adjacent to the upland. It is subject to the action of the tides, and lies about level with the water at full tide, though being so far from the sea as to be but little effected with the salt water, the grass being of those kinds common on fresh bogs. Owing to the tides, it can only be cut when frozen, and at low water. About four feet in depth is usually secured before being obstructed by water. The bottom spit differs from that of the top only from being partly decomposed. A portion of this is hauled every year into the stable yard and incorporated with the coarse grass cut from the same meadow. Added to this is the manure of twenty or more head of cattle that are wintered in the yard. Other portions are shovelled over from the pile once or twice before it is used, which aids its decomposition and disintegration. This is added to the soil after undergoing a preparation of from one to three years, according to the manner of treatment and the crops to which it is to be applied. I am thus particular in describing the character of this muck and the manner of preparing it, hoping that others may be induced to use it where it can be readily obtained.

The most economical method of converting either of the kinds referred to into valuable manure, is to haul it out, either in the summer or winter, as circumstances may require, and add it to the yards and stables, in as large quantities as may be convenient. It is a matter of the first importance that the stables be so arranged that all the liquid portions of the manure may be absorbed by it. The best land will not continue perpetually to yield paying crops unless it is fed, and no material is so cheap, where it can be obtained conveniently, as peat or muck. H. P. B.

Changing the Hardiness of Varieties.

Varieties which are propagated by cuttings, grafts or buds, or in any way in which the individual plant is merely extended or multiplied, can never be changed in their hardiness by any mode of cultivation. Frequent errors are committed by cultivators by not understanding this principle. Many years ago when the Morus multicaulis mania was at its height, and after it had been discovered that the Chinese mulberry would not endure severe winter, a certain puffing cultivator advertised hardier plants which he had raised by a certain repeated process of propagation. More recently, an extensive grape culturist claimed that he had considerably hardened the Isabella, and rendered it earlier by a similar process, and he therefore agreed to furnish a better and improved Isabella, which he offered extensively in market. We observe a similar mistake committed by cultivators at the present time in supposing that the Delaware and other varieties are rendered hardier or more tender by the mode of propagation—and assertions are frequent that plants propagated in houses are not so good as those raised out of doors.

It is freely admitted that a plant is rendered hardier or more tender *for the season*, by the different influences in cultivation to which it may be subjected. For example, an early and healthy growth, causing it to ripen its wood in good season, will better endure the succeeding winter than a late and succulent growth with half-ripened shoots. Hence the practice of highly manuring vineyards, especially of the larger growing varieties, has been found to render them more liable to injury. The same rule will apply to house-culture. If the growth of vines in pots under glass commences early in the season, so that the wood may become perfectly formed and ripened before its close, such vines will endure the severest exposure better than those growing in open ground which have started so late as not to ripen their wood. It must be borne in mind that it is the heat of summer that renders a plant hardy, and not the cool weather of autumn—for the former produces perfect maturity, while the latter prevents it. For the same reason the longer continued warmth of a propagating house, may produce greater firmness of growth than a short and cold summer out of doors.

It will be observed that the difference in hardiness just mentioned, does not at all affect the character of the variety—it is merely the temporary condition of the growth at the time—in the same way that the shoots of any tree are in a different condition as to maturity on the first day of summer and the first day of autumn; not the slightest permanent influence is produced. We might as well expect water to be made

to freeze over by placing it in a green-house, as to render a plant essentially tender by the same process.

It is only by propagation *from seed*, producing new varieties, that increased hardiness is secured. Hence some varieties are thus obtained that always endure the winter better than others, and this difference is permanent, and cannot be changed by any mode of propagation. All cultivators—farmers as well as horticulturists—should bear in mind this great distinction; and remember that while such crops as are constantly raised from seed, as wheat, corn, &c., may be continually changed in character, and, consequently, as like always tends to produce like, the best seed should be perpetually chosen. But, on the other hand, varieties such as the potato, where there is no re-production from seed, but merely a repeated extension of the same plant, no change whatever can take place. A potato not more than half an inch in diameter will be found to yield as large tubers as one weighing a pound —provided sufficient moisture and as favorable influences are given to the small tuber as the large one. In ordinary practice these favorable influences do not usually exist, and this is perhaps the only reason why large potatoes produce more than small ones.

The same principles will apply in grape propagation. A small cutting will produce as good a plant as a large one, provided all the favorable influences of fine growth exist, and sufficient time is allowed for the shoots to attain full size, and to ripen their wood.

Before concluding, it may not be amiss to remark that even the propagation of new varieties by seed, although effecting change to some extent, cannot greatly vary the hardiness of the species. Indian corn and potatoes, for example, notwithstanding the many varieties in size, earliness, &c., which have been produced, are always cut down by the first frost—and no amount of selection and re-production can render them as hardy as wheat or June grass.

Remarks on Breeding Dairy Stock---II.

MESSRS. EDITORS—One of the most common causes of failure to improve farm stock, is the fear of doing harm by breeding in too close relation. To avoid this, farmers cross and re-cross with all the alloy and base elements to be found in their neighborhood. Pure and valuable blood can never be called into existence in this manner. The husbandmen of our extended Republic should know when to propagate their domestic animals by in-and-in pairing, and when to abstain from this practice without citing authorities. I will give the result of my own observations and researches in the matter.

All animals are liable to be attacked by many diseases; and high feeding and breeding do not lessen this natural infirmity, but often increase it. No matter how local a disease may be at its commencement, morbid atoms may pass through vessels and the pores in the walls of cells, and thus spread the malady till the whole system is brought under its influence. After this, if not removed, it may result in what is called a "constitutional disorder." Parental cells coming from a diseased system, and forming the starting point of a new being, retain the taint of either father or mother in their joint offspring. Now, it is more than probable, where cows and bulls are raised on the same farm, drink the same water, breathe the same malaria if there is any, and eat the same food summer and winter, having the same shelter or doing without, they will have constitutions and complaints not very unlike. Suppose the lungs of both sexes are weak, sensitive and liable to inflammation from slight changes of temperature and humidity, this defect will be increased by breeding them together, no matter whether they are near of kin or not. It is usually only after a herd has been bred long enough to become closely related that evils of this kind show themselves alarmingly, and therefore it is that in-and-in propagation is condemned. The injury, however, lies not in the fact that the male and female parents are of the closest possible blood relation, but comes from morbid atoms in the cells that form the fœtus. Sound and pure constitutions and blood in both parents, no matter how closely related, do not, and cannot beget unsoundness as their natural fruit. Nature is always true to her highest interests; and she does not prevent in any way or degree, the pairing of wild animals in the closest possible consanguinity. Hence, nothing but known disease will justify a man who wishes to avoid the deterioration of his milking stock in ever using a bull that comes from a family of cows inferior to his own. Bulls of this inferior character have often been preferred for the sake of change, and this made the change for the worse.

I know not what may be the precise views of Mr. L. F. Allen (author of the American Herd Book,) on this point; but his remarks at the meeting in Rochester, led me to believe that he regards in-and-in breeding as essential to the improvement of dairy stock. As the first pair in each species were nature's starting point for the indefinite multiplication of the same, man can take any sound pair, and from them develop a new branch or breed better adapted to his wants and purposes. Disease from external forces is the only enemy he has to contend against, when all is sound within. Some knowledge of comparative anatomy, and of the proper office performed by each organ in the system, is indispensable to the skillful improvement of domestic animals as their life and blood pass down from generation to generation under human care and guidance. As quacks generally know just enough of the healing art to violate the laws of nature and do harm, so stock-growers in the plenitude of their vanity and ignorance of the laws of physiology, labor assiduously to produce mongrels that nature abhors, and in the belief that they are "crossing" their stock with peculiar wisdom and success.

Nothing is easier than to say, "one should always breed from the best." But how is one to know—not guess—what animals really possess the best blood to give embryo cells for the purpose contemplated by the farmer? He can hardly take one step with safety until he removes the darkness that blinds him, and passes down the gentle current of parental blood through many generations, and sees clearly how this life-giving and life-extending fluid is changed, now for the worse and now for the better. It is a voyage between Scylla and Charybdis, in which safety and honor are achieved by carefully avoiding all extremes, and conquering great Nature herself by obeying her divine laws. Let us start right and learn well our first lesson. In all

things God requires obedience; and *the fear of him* "is the beginning of wisdom."

Vitality is most susceptible of lasting impressions, is most elastic and vigorous, while it exists in young and growing animals. Hence, the best time to expand the milk-giving function in female kine is during their growth, from the time a calf is born till it becomes itself the mother of its first calf. The part that secretes milk is better called lacteal gland than a cow's bag; because bag implies only a sack in which something may be carried; whereas, lacteal gland implies a vital organ that secretes milk. An organ that separates two pounds of rich milk from circulating blood in one hour, and does so for hundreds and thousands of hours in succession, possesses many points of great economic and scientific interest. There are many other glands in the system besides this, but none that will compare with it in expansibility. One healthy cow in milk raised in the south, gives all of two quarts in 24 hours; another raised at the north, gives 24 quarts in the same length of time. To appreciate this remarkable difference, let us suppose that the liver of one cow should secrete and throw into the bowels twelve times more bile than came from the hepatic gland of another; disease and death would soon ensue. Suppose that while the kidneys of one cow in perfect health separate one quart of water from her blood, those of another should take twelve quarts. Here again death would be the consequence. The lacteal gland has a wide range, and many curious resources not generally known. Whoever has access to Carpenter's Physiology may find in it a reliable account of a colored *man* in Baltimore who gave milk, and nursed a child several months.

To the development of this parental gland, and of the blood vessels that belong to its functions in heifers, I must devote another letter. D. LEE.

LETTER FROM CALIFORNIA.

Loss of Stock from the Drouth—The Great California Cheese.

SAN FRANCISCO, CAL., Oct. 18, 1864.

EDS. CO. GENT.—I have been so situated the past summer, that I have not been able to write you. I returned to this city a few weeks ago, from a long trip in the mountains south of this parallel. Everywhere, except in the high Sierras, are the evidences of the great drouth, unparalleled in the history of the State. Your readers are aware that in this climate no rain falls during the long summer. The ground is saturated in winter. An abundant herbage of native plants grows up on the plains and lower hills during the spring, which dries on the ground in early summer. This furnishes the forage for the enormous herds of cattle and sheep, for which the State has been so justly celebrated.

Last winter less than half the usual amount of rain fell, and over the whole southern half of the State scarcely any, not enough to wet the parched earth thoroughly. As a consequence, the spring feed was very meagre—in places none at all. To make matters worse, the whole southern half of the State was overstocked; probably twice as many cattle were grown there as the demands of the State justified. The forage would have been insufficient even had we received the usual amount of rain. As a consequence, cattle have perished in vast numbers, all the larger ranches losing thousands; some of them even over ten thousand. This has proved a serious calamity, indeed, to many.

I accidentally picked up to-day a copy of the COUNTRY GENTLEMAN of Sept. 5, 1861, containing an account of a California Ranch, or ranches, belonging to one man, "which comprises 230,815 acres, upon which he has 18,000 head of cattle, and 3,000 head of horses." The sequel to this paragraph can now be written, and is sad. In the beginning of 1863, his cattle numbered 30,000. To-day he is a poor man! His failure is attributed to the losses he has sustained from the drouth.

During the spring and early summer of 1862, I passed leisurely up the great San Joaquin valley. Herds of tens of thousands of cattle dotted the plains as far as the eye could reach, and the luxuriant pasturage looked like a sea of green, stretching away to the distant horizon.

This summer I again rode over the same plain; it seemed like riding over a desert—scarcely a green thing to relieve the eye. Here and there a poor animal trying to pick up a miserable subsistence, and thousands of dead cattle polluting the air with their stench.

In the high Sierras there is much good feed, and many cattle have been driven there to escape starvation.

Yet this great calamity that has fallen so heavily upon individuals, has not been so great a calamity to the State. The State was over-stocked with cattle and horses, and all the largest herds were inferior "Spanish" stock. There are still enough left for the wants of the State, and it is probable that a better breed will be introduced to take the place of the wasted herds, and the marvelous fertility of the more favored regions have enabled the farmers to produce enough grain for home consumption. One good year again and the drouth would be almost forgotten.

As I returned to this city the Fair of the Mechanics' Institute was in full blast, but it contained but little of agricultural interest, very few agricultural implements being made on this coast, and this part of the exhibition was very meagre. Some fruit, contributed and sold for the benefit of the Sanitary Commission, would be noticed anywhere out of California, but attracted but little attention here. The samples were especially noticeable from the enormous size of the fruit.

The great "*Sanitary Cheese*" attracted much attention. It was made by two patriotic rancheros, Messrs. Steele Bro. of the Pescadero ranch, Santa Cruz Co., and presented to the Sanitary Commission. It was placed on exhibition at the Fair, and has since gone East, I believe. It was enormous, weighing almost *two tons*, or to be more exact, 3,930 pounds, yet well made and in perfect form. They have on their two ranches 1,400 cows, from which they selected 600 of the choicest, and assigned the work to thirty men, experienced in the business. The 600 cows selected, yielded about 120 barrels of milk in three and a half days, from which the immense curd was prepared. The cheese is nearly six feet across, and it is not easy to see how they manipulated so large a mass with such success; but successful they were, and thousands of soldiers will bless their patriotism and generosity, as well as their skill. When Eastern dairies beat this, Messrs. Steele will try again, for California is not to be beaten. WM. H. BREWER.

GLASNEVIN FARM SCHOOL.

With the present interest in Agricultural Education and the in establishment of schools or "colleges" for the purpose, any information bearing upon it will be of service. The "Glasnevin Training School," near Dublin, is one of the most successful of its kind, and nowhere perhaps exceeded in the practical character of its design and management. We are reminded of it, and of our own visit there some years ago, by a full account of its present operations, lately contributed to the North British Agriculturist from the pen of an able correspondent. From this article, which is of too great length for our pages as it stands, we propose to derive several hints, deserving, as we think, of careful consideration here.

1. *The Size of the Farm*, although only about 175 acres, is large enough to include Dairying, the Feeding of cattle, sheep and pigs, and the production of considerable quantities of Grain and Potatoes for sale; also for an extensive and well systematized Botanical garden, and for another, including vinery and greenhouse, fruit trees, vegetables and flowers. Now, notwithstanding all experienced men are agreed that American farmers generally suffer from the attempt to cultivate *too large a surface* in proportion to the capital and labor expended, this is the very first mistake which our Agricultural Schools have generally made,—so that, in a primary and really a vital matter, they place a bad example before the agricultural public. What is true of a private farmer is equally true of such institutions, and in view of their influence with others, in a far more important sense,—namely, that a hundred acres, well conducted, can not only be carried on much more satisfactorily, but also much more profitably, than three, four or five hundred, marred by all the faults common to the too diffused and badly concentrated farm management of the country. In size, therefore, Glasnevin affords us one hint.

2. *The Farming*, in the language of the article before us, both in-doors and out, is a model of tidiness, very superior in that respect, in the absence of weeds, and in the yield of the crops harvesting at the time of the visit, to anything else seen in the journey through Ireland. This is a standard, which, if possible, should be sustained on such a farm here. An examination of the books revealed the cost and income for two years past, (on the farm proper, of 164 acres,) and we copy, for the sake of illustration, the balance sheet of 1862:

Glasnevin Farm, Dr.		*Glasnevin Farm*, Cr.	
Valuation of effects March 31, 1862,	£2,804	Dairy Produce sold,	£518
Stock bought,	122	Cattle,	413
Feeding Stuffs,	188	Sheep,	42
Wages,	107	Pigs,	150
Seeds and Manures,	112	Grain,	284
Implements & repairs,	86	Potatoes,	208
Coal for steam engine,	23	Italian ray-grass seed,	11
Oils, paints, medicines, &c.,	55	Cabbages,	5
Tiles for drainage,	8	Miscellaneous,	13
Miscellaneous,	53	Valuation of stock at 31st March, 1863,	2,672
Rent, 164 acres,	649		£4,316
Balance,	109		
	£4,316		

This shows a balance of profit of £109, *after paying a rent* of £4 per acre, and though 1863 and other years may not have been equally successful, still we understand that on the average the farm is made to pay its rent—which rent-charge, say of $20 per acre, or a total of nearly $3,250, would in this country represent, less interest on value of land, so much clear profit. One object, however, in quoting the foregoing figures, was to show the amount of capital invested in carrying on the farm, represented by the valuation at beginning and close of year. This, at $5 to the pound sterling, was from $13,000 to $14,000 on the 164 acres, —or $80 to $85 per acre—which, although in excess of such requirements here, reminds us to say that, in the in the apportionment of their funds, Trustees are too likely to overlook the amount which *is* necessary for the proper stocking and working of the farm, and consequently to find themselves always afterward hampered and restricted in what they undertake. We may also call attention to the sources of income above specified, as indicating something of the range of the farming.

3. *Instruction.*—There are accommodations for about 90 pupils, but the government pays their board, and has been so economical of late as to restrict the number taken to 60. The course is two years in length—admissions either in January or July.

"The instruction in the class-room is literary as well as agricultural. The literary classes are for spelling, grammar, composition, book-keeping, writing, mapping, &c. The agricultural classes comprise husbandry, chemistry, botany, geology, surveying and mensuration. These classes are taught by professional men who are selected by the commissioners.

"The out-of-door instruction is partly in the garden and partly on the farm. In the gardens the pupils are made to dig, to sow at the proper seasons, to graft trees, and rear vegetables and flowers, under the directions of an experienced practical gardener. On the farm they not only receive from Mr. Boyle explanations of the several operations, but they are made to take part, and put their hand to everything going on."

Thus, at the time of this visit, nearly one-half the pupils were in the harvest field, and among the occupations of the rest, we note feeding and attending to stock, garden work, turning manure heaps, and so on, while two were exhibiting stock at the Show at Sligo. Dr. Kirkpatrick is the General Superintendent and Inspector, and Mr. Boyle, himself a former pupil, manag s the farm and gives practical instruction on it to the pupils. The expense of maintaining the Institution is not reported, but an estimate places the board of the 60 pupils at £1,200 a year, and salaries of teachers and others at not less than £1,000 more. If these estimates are correct, the cost to the government is only from £35 to £40 a year for each student—say $200, which is not large, and which may perhaps be taken as indicating that an institution here, so endowed as to give every needed facility in the way of working capital in-doors and out, for doing everything in the best manner, and paying its professors and instructors from the income of its funds, ought to receive and educate its pupils at about the cost of actually boarding them; and this, when accomplished, should be considered sufficiently moderate to attract the necessary number of students. And, as the endowment becomes more ample, of course even this charge could be reduced, if desirable.

The management at Glasnevin is certainly most creditable to the Superintendent and to Mr. Boyle. The course of study is not so high as would probably be required here, and as this is extended, the number of years occupied would necessarily have to be increased. But it is easy to see that the foregoing outline, if followed in so far as applicable to the circumstances among ourselves, would include—1st, a farm that should be really a "model" to the community, and the influence of which would be felt far beyond the county or State in which it was located, and—2d, a course of instruction which must at least tend very greatly, after a series of years, to elevate the standard of our agriculture, and to promote the intelligence of those who follow it as a pursuit.

How Every Man may Raise his own Peaches.

MESSRS. EDITORS—Many of your readers, though perhaps not all of them, have realized the difference in flavor between a fully ripened peach taken from the tree, and the same insipid fruit that we find in our market, obtained from orchards located from one to four hundred miles distant. In the latter case, in order to have this fruit in a condition to bear transportation, and to last until it can be sold without decaying, it has to be picked in a green state. The consequence is that when there is a good crop in Western New York or New Jersey, our markets overflow with peaches, but scarcely one is to be found fit for eating out of hand, or for cutting up into cream for the table. Such peaches have often an attractive appearance when seen piled up on fruit stands or exposed in baskets, but they are not worth much except for preserving.

Having discovered a method by which every man may raise his own peaches, and have them in abundance and perfection, it affords me pleasure to communicate it to the public for the general benefit, and espially for the information of all lovers of good fruit.

To raise my own peaches I proceed as follows: I commence by digging the earth away from one side of the tree, at the distance of about 12 or 15 inches, deep enough to sever all the roots that interfere with my object. Running the spade also under the tree, so as to cut all the roots that descend vertically, the tree is in a condition to be bent over on one side and laid flat on the ground. Several of the stronger lateral roots on that side are not cut at all, but only curved upward somewhat as the tree reaches the ground. This does not injure them. The branches of the tree being brought as close to the earth as possible, they are still farther flattened down by laying an old post or some similar weight upon them, care being used not to break the limbs. The object is to get the top of the tree pretty close to the surface. A mound of earth is then raised over the upturned roots, so as to prevent their freezing in the open air, and the fruit-bearing wood is covered lightly with some kind of litter, enough to conceal them mostly, but not so heavily as to furnish a harbor for mice. I use my old tomato or cucumber vines, potato tops, asparagus stalks, or any thing of that kind. My trees are now ready to be covered with snow as soon as winter sets in, which I keep piled over the whole top of the tree from six inches to a foot in depth. This is all that is required. The whole process may be described under the title of *burying your trees in the snow*. Keep the snow on all winter until it goes off in the spring, and your fruit buds will come out as fresh and lively as they were when laid down at first.

In the fore part of April, or after the buds begin to show signs of starting, set your trees up again by clearing out the space on which they stand so that the shortened roots will go back naturally to their proper positions, and can be secured there by pressing the earth in around them, or throwing up an extra quantity around the base of the trunk. Trees thus treated will exhibit no signs of injury, but will grow as vigorously during the summer as though their roots had not been disturbed, I think, however, the operation is a somewhat dwarfing one, but the health of the tree is not in the least effected.

To grow peaches in this way, I shall depend mostly upon young and small trees. When they get to be old and stiff it may be better to throw them out altogether and replant. As far as is practicable, the tree should be forced into a fan-shaped form. This brings the branches closer to the ground for covering. My old trees now are ten feet high, and measure ten or twelve through the branches at the widest. Instead of having a spindling growth from the ends of the limbs, they grow quite bushy, and have new wood within three or four feet of the surface. Trees set in the spring of 1863, have many hundreds of blossom buds on them, and may bear a peck of fruit. Trees set last spring have many blossom buds, and will produce as much fruit as it will be safe to allow the trees to to bear. I think it pays to get a dozen fine peaches from a single tree two years old from the bud.

I have tested this method two years in succession successfully, with complete success this last season. The trees experimented upon were five in number, all of the fine sorts, and have been growing in my garden ten or twelve years. They were annually headed down with the hope that some mild winter would transpire which would reward me with a crop of fruit for my pains; but they never produced a single peach, though setting largely with fruit-buds in the fall. I tried several other experiments, which all failed, until in the fall of 1862 I bethought myself of this plan. My five trees were laid down, and one of them only littered as above prescribed, the rest merely covered with snow, after snow fell, which was not until after the 1st of February, and there never lay over 4 inches in depth on the ground. That was in 1863. The mercury only fell to about zero until after the snow came in February, when it once or twice went down to 8 or 10° below, and all the peach buds on standing trees were klled. The tree which had the straw protection besides the snow, produced a fine crop; one of the others had two peaches on it; the other three failed. Whether this was owing to the want of straw or the lack of snow previous to the month of February, I could not determine; but last fall I treated all my trees to a litter. The snow in this section was light last winter, but it came earlier and was at one time eight inches in depth, and I was able to keep my trees covered all winter. Their extreme height was six or seven feet. The fruit-buds were preserved beautifully, although the mercury went down to 8 or 10° below zero, and the buds on all the standing trees in my neighborhood perished. My best tree bore 250 perfect peaches; another 150; the others not so many, but still handsome crops. They all ripened finely on the trees, and I enjoyed what nobody else did under similar circumstances—quite a supply of the most delicious fruit in the world, grown upon my own grounds. My trees are now eight or ten feet high, quite spreading, are healthy and vigorous and full of bearing wood. The blossom buds on them may be counted by thousands, and as they are to be subjected to the same process as before, I have no doubt they will produce me several bushels of fruit next year, let the severity of the weather be what it may during the coming winter.

As soon as I found out what could be done in this way, I increased my stock of trees, having set new ones in both 1863 and 1864. They now show nume

rous fruit-buds, and I shall bury them all in the way I have described, although some of them are mere shrubs. I shall be satisfied with a dozen peaches on these, although the largest will probably bear from four to six dozen.

Some of your readers may think the amount of labor requisite for this object a serious matter, but I do not. Two men will lay one of my largest trees down in ten or fifteen minutes, and replace it in the spring in the same time. They will have to be watched during the winter to keep the snow on, and in this region of light and fugitive snows, they should be attended to at every fresh fall until a foot in depth is accumulated upon them. In my case, whenever we got an inch or two of new snow I went out with a broom and swept it up for a considerable space around my trees, and threw it up on the pile over them. In more snowy regions, after the work was once done, this close supervision would not be requisite.

In the natural peach-producing sections recourse, to this method would not be necessary; but where the blossom buds are liable to be killed by the extreme cold of winter, and where the snow can be depended on, every man who tills a farm or cultivates a garden can always produce a peach crop at least for family use, and I see no great obstacle to its being done in a small way for the market. The cultivation of one hundred trees would not involve a very large expense, and if confined to the varieties which bring the highest price, as the Morris Whites, for example, which sold in this city last fall for seven dollars per basket, it might be made quite remunerative.

The simple substance of this plan is to plunge the peach beneath the snow during that portion of the season in which the mercury is liable to fall below six degrees below zero. In any part of the country where this extreme degree of cold occurs, and yet where snow is found, if the tree itself can be carried over the winter, so can the fruit-buds. I think the peach can be grown any where in the Northern States where these conditions may be found.

The time for laying trees down is in the month of November or December, before the ground freezes solid. Pile on the first snow that comes, and keep them covered as long as the snow lasts.

I hope this article will be in time to induce some of your readers to give my method a trial this winter. If others shall succeed in it as well as I have, it may result at least in stocking a good many gardens with the peach where it is now not known that it can be grown. V. W. S.

Syracuse, N. Y., Nov. 16, 1864.

Cheap and Simple Plan for Wintering Bees in the Open Air in Movable Comb Hives.

Mr. O. Sprague of Fulton, Whiteside county, Illinois, has devised a plan which, with some modifications, promises to effect as great an improvement in wintering bees as the movable comb frames have wrought in handling and managing them. He has tested it for three years—first with nine, then with sixty-four, and last winter with seventy-five stocks, without losing one where the bees had sufficient honey, although from the extreme cold of last winter many bee-keepers in his vicinity lost nearly all their colonies.

Having noticed that *dry corn cobs* were admirable absorbents of moisture and non-conductors of heat, it occurred to him to remove in the fall the honey board and use cobs in its place. These can be easily cut to suitable lengths with a sharp hatchet, so that two rows laid crosswise will exactly cover the tops of the frames, by alternately placing the rows butt to butt and point to point. A few nails in the front or rear ledge of the hive, or tacks in the tops of the frames for the outer cobs of each row to rest against, will keep them in place when the cover of the hive is raised.

Mr. Sprague has a machine by which he cuts thirty or forty cobs per minute, and in one day he can cut and adjust enough for fifty stocks. If stored in a dry place they are almost as durable as cork, to which, in warmth and dryness, they bear a close resemblance.

Mr. Sprague says that the bees easily pass from comb to comb under the warm hollows made by the cobs where they lie against each other, thus requiring no other winter passage. In the coldest weather his bees are warm and dry, adhering closely to the lower sides of the cobs, and they come out of winter quarters in prime condition, very few having died in the hives. The frost, which often gathers in the upper cover of the hive, cannot, when melted, wet the colony, as the cobs will absorb and retain all the dampness which can possibly arise from "the breath of the bees." Before using the cobs, his colonies, when wintered on their summer stands, were often in the spring both weak and sickly. By removing the honey board he sometimes saw large drops of water on the tops of the frames, even when all its holes had been left open for the escape of dampness, and in some instances the bees were so drenched that a sudden change to a severe temperature would have frozen them into a solid mass if left in the open air.

Mr. Sprague farther claims that the cobs enable him without any drawback in wintering his bees, to use a *low or shallow hive*, which shape he is satisfied, after much experience, yields more surplus honey in marketable form, than can be obtained from taller hives.

Since Mr. Sprague communicated his plan to me, I have placed a layer of cobs on the *bottom board*, also suspending the frames on cobs fastened to the rabbets; and have lined the *sides* with cobs held in upright position by fine annealed iron wire, fastened to the heads of nails driven into the sides of the hive.

I think that these sides and bottom linings are a great improvement, and that the saving of honey will more than pay for their additional cost. Many, however, will prefer Mr. Sprague's plan, as it requires less labor, and may be used when the lateness of the season does not permit a more thorough lining of the hive.

If any stocks are likely to need feeding, I would advise shortening two or more of the central cobs of each row, so as to leave a space for a piece of old comb or a shallow feeder, which when covered with cobs and old woolen garments, will allow the bees to be safely fed in the coldest weather. In the spring, a little food to stimulate breeding may be sprinkled on the cobs, or water, when the weather is too chilly to allow the bees to venture abroad.

In many parts of Europe where corn-cobs cannot be obtained, *winter* lining for movable comb-hives may be made of straw. *Permanent* linings of straw are objectionable, because they afford in summer an excellent harbor for the larvæ of the bee-moth, and occupy so much room that the size and cost of the hive must be considerably increased. There is no need of any *summer* lining to prevent the combs of movable frame hives from being melted by the heat; as with proper ventilation, such hives may be safely exposed if necessary to the full heat of our hottest suns.

There can be no question that corn-cobs are preferable to straw, either as temporary or permanent linings for bee-hives; and the lovers of the busy bee in this country will appreciate the services of Mr. Sprague, in suggesting and successfully experimenting with a material so cheap, so lasting, and so univerally accessible

Oxford, Butler Co., Ohio, Oct., 1864. L. L. LANGSTROTH.

WHEAT DRILLING .VS. SOWING.

The last Report from the Department of Agriculture contains extracts from its correspondence in several States with regard to the comparative freedom from injury of the Wheat crop, where drilled in and where sown broadcast. These extracts, if fairly representing the results of both ways of seeding, would certainly indicate that the former far excels the latter, in the safety and certainty of the product.

From the great wheat-growing State of Illinois, letters are given from nine counties, nearly unanimously asserting that the "drilled is much superior to the broadcast." From seven counties in Indiana there are reports of similar tenor—with the exception from one writer that where the ground is rough and cloddy, the broadcast succeeds better, and from another that the greater success of the drilled is thought to be due, not to the fact of drilling, but to the better preparation of the land necessary in using the drill. From Ohio there are reports from eight counties, with widely varying estimates of the actual advantage resulting from drilling, but all agreeing that it affords greater protection against the effects of frost. A correspondent in Michigan gives as the chief disadvantage of drilling that the wheat "in wet seasons is liable to be submerged in the ruts on undrained soils," the water freezing solid over these ruts and thus smothering the grain. He sowed 400 acres last autumn, both with drill and by hand, but while the latter was not worth cutting, the former gave a fair crop. Other extracts are given, from Iowa, Maryland, New-Jersey, Missouri, Kentucky, Pennsylvania, and New-York. A correspondent in Ontario county (N. Y.) writes: "We had 16 acres of wheat drilled, which is estimated at 30 bushels per acre, whilst the next field sown broadcast is estimated at but ten bushels per acre. Both fields were cultivated in the best manner, are tile-drained, and were well manured. We drill *two* bushels of seed per acre, and sow *three* broadcast. So you will perceive that there is a great saving of seed by drilling. It also, by leaving the ground in ridges, protects the plant from the cold winter winds, and in the spring, as the earth thaws out, it crumbles and falls around the roots. Hence the roots are not injured by alternate thawing and freezing, as are those of the broadcast sowing."

Arguing from the data presented by these and other correspondents, together with the computed aggregates of the crops of 1863 and 1864, the writer of the Department Report, calculates that the loss of wheat the present year was some six millions of bushels greater than would have been the case if drilling were universal. This is upon the supposition that about two-fifths of the crop was drilled in, while the remaining three-fifths was sown broadcast. Of course such an estimate as this may or may not be very wide of the mark, but there can be no doubt that it rests upon some foundation in fact, and that with such a winter as the last, and indeed in some part of the country during every winter, the advantage of drilling is very great.

To derive the highest advantage from it, however, it should be accompanied by good farming in other respects. Drainage should be attended to, and the soil made mellow and well pulverized for the reception of the seed. And the higher the condition of the land, the greater the advantage, for the two reasons, first, that the number of stalks likely to come from each seed—its propensity to tiller well, is increased, and, second, that from the uniformity of seeding in depth and distance apart, each plant has an equal start and an equal power of availing itself of all the nutritive matter within its reach.

With these facts satisfactorily established, we look for a continual increase in the area of winter grain drilled, as compared with that sown broadcast. And manufacturers of good machines for the purpose would find it to their interest to keep them advertised at the proper season. Every year we have more or less inquiries on the subject, and it is a long time since an advertisement has appeared in our columns which would show that a single implement of the sort was made in the country.

We have adverted to the subject not only from its own importance, but also because it is a good and appropriate thing for the Agricultural Department to obtain from its correspondents all the information it can elicit upon such matters of practice. Facts thus collected—if *facts* they invariably are—will go farther to extend and support an improved system, than all the essays that were ever written within the walls of the Department. It is gratifying to note that these Bi-Monthly Reports have been confined far more closely to their legitimate purposes, since we had occasion to refer to the subject before; and, as we have already said, if properly conducted, they will form a very useful adjunct in the operations of the Commissioner.

THE APPLE-TREE BORER.

Henry Ward Beecher, in his recent remarks at the horticultural gathering on Iona Island, said the only serious enemy of the apple was the borer. He remarked, however, that one-half of the labor required for securing a crop of potatoes, acre for acre, would entirely exclude the borer from the trees. Any good orchard, he added, would yield half as much, from the same area as a field of potatoes; and the owner who was not willing to expend a corresponding amount of labor to save it, deserves to be bored. We think he is very moderate in his estimate of the products of orchards—for any one under good management, with productive varieties, should average 10 bushels yearly from a tree, or 400 bushels annually from an acre of 40 trees two rods apart. Very few farmers obtain this amount of potatoes. There may be seasons when the apple crop would be much smaller, but as a fair estimate it will be fully equal to that of potatoes. An examination of the trees three or four times a year by a man with a quick eye, sharp knife and flexible wire, will effectually destroy or exclude the borer.

There is another enemy, however, which of late years has proved rather formidable—this is the apple worm, which we must destroy, if we would have fair marketable fruit. Dr. Trimble's remedy, mentioned in this paper a few weeks ago, may prove valuable; in addition to which the practice of thinning the crop before maturity, and removing all the smaller specimens, and those infested or punctured by insects, will contribute to this desirable end.

Why is a lady's belt like a scavenger? It goes around and gathers up the *waist*.

Report of the U. S. Commissioner of Agriculture.

The "Annual Report of the Commissioner of Agri culture for the year 1863," has just been published. It is a volume of nearly 700 pages.

The first article is a description of the International Exhibition at Hamburgh, by Daniel Needham of Vermont. It is interesting, although not adding materially to what we have had in previous accounts of the same event. Articles on Minnesota and West Virginia follow, and then we have a few pages each on Tobacco, Hemp, Root crops, Flax, and the Teasel, from different writers. Mr. Elliott next describes some popular varieties of the Apple, Pear and Grape, and the culture of the Cranberry, the Strawberry and the Grape are treated by others, with short notes on Wine making. Francis Morris of New-York contributes a chapter entitled "Cavalry Horses in America," which is worth a careful reading, and contains suggestions that should, if possible, be carried out.

Although some may not coincide with all that Mr. Morris says in defence of racing and the race-course, we can none of us overrate the value or importance of the horses of the country, or question the propriety of giving greater attention to their breeding. If there was more and better encouragement to breeders here, as there has been in the South, and is now in England, we should have less to complain of in the usurpation of our local agricultural shows by the horsemen; they would have other fields of competition *of their own*, to the better advantage of *their* interests and without detriment to those of others. Mr. M. points out distinctly a fact which, previously to the recent New-England Fair, we supposed to be recognized by all—"that no trotter has ever shown courage, endurance and mettle, whose pedigree could not be traced with more or less directness, to good racing stock." * * * "The many good qualities of the Canadian pony are due, without doubt, to the early importation by English officers of valuable racers to Canada." Our limits will not admit of continuing the subject here, but we shall recur to it hereafter, as Mr. Morris writes both from long observation and from much experience.

The Conestoga horse is next described by another contributor. J. T. Warder, Springfield, Ohio, gives some concise and practical remarks on Mule Raising. The portraits of one or two animals from the Thorndale herd, appropriately accompany a page or two on the Short-Horns. Sanford Howard describes the characterestics of Ayrshire Cattle, with engravings from the herd of H. H. Peters. H. D. Emery, Chicago, has an article on Hogs and Pork Packing in the West. Among other articles—for we cannot include the whole list—the favorable side of the Cashmere Goat question is elaborated at some length; H. S. Randall discusses the Selection, Treatment and Diseases of Sheep in the United States, with illustrations from various flocks—(we regret that we cannot compliment the Department on the execution of most of its engravings); W. W. Hall, New-York, treats of Farmers' Houses, mainly from a sanitary point of view; Simon Brown of Massachusetts, writes well and gracefully on Farmers' Gardens; S. L. Goodale, of Maine, practically and at length, on the Manufacture of Cheese as a staple article of export; M. L. Dunlap of Illinois on Agricultural Machinery; J. S. Lippincott of New-Jersey, on the Geography (or climatology and acclimation) of Plants. A summary of the Dog Laws of the different States is presented. Richard Colvin, Baltimore, gives the results of the introduction of the Italian Honey Bee, and of its intermixture with the common Honey Bee of the country. The volume concludes with the Reports of the Superintendent of the Experimental Garden; of the Entomologist; of the Clerk of Statistics; and, from the Smithsonian Institution, on the Meteorology of 1863.

From this summary review of its contents, it will be perceived that the present Report is marked by some interesting features; and if, as usual, it scarcely reaches the high standard at which many would gladly see it aim, that it cannot nevertheless be as widely circulated and read as it is, without contributing in a considerable degree to the general information of those engaged in rural pursuits.

COTTAGE CHEESE.

Many of our readers who have had to purchase cheese at the rate of twenty-five cents per pound, or what amounts to about the same thing financially, have had it for sale at this price, would doubtless be glad to know the best was of making a cheaper substitute—and one which by the way of vatiety would be preferred to common cheese. A family which has the milk of but one cow in summer, may enjoy a plentiful supply; and occasionally during the warm weather of winter, if the room where the milk is kept favors coagulation, a pleasant treat may be sometimes obtained.

A skillful housekeeper, at whose table we have frequently enjoyed well made cottage cheese, furnishes us with the following directions for making the two best kinds. There are worse modes which we prefer to omit. The ball cheese is made as follows:—Mix the curdled or loppard milk with an equal quantity of buttermilk, and place them over the fire in an iron vessel. The mixture should remain till it becomes hot, but not scalding, for if it is boiled the cheese is spoiled, and the work is foiled. It must be "severely" watched at this time, and as soon as it begins to curdle and the whey appear, take it from the fire. Put it in a bag and let it drain until the next day. Then mix enough salt with it to give it a proper flavor, and add either cream or butter to give it a proper consistency to work into balls—the cream to render it softer, or the butter to harden it, as the case may be. This is a good kind of cheese, but the following is better:

Pour boiling water from a tea-kettle spout into the pan containing the loppard milk, beating it all the time with a spoon, until it begins to granulate and the whey separates. About one-fourth of the quantity in hot water is usually sufficient. Then empty it into a collander, and let it drain about ten minutes. Pour on a quart or two of cold water, and as soon as this drains off, apply salt enough to give it an agreeable taste. Put it in a dish for the table. Some persons prefer the addition of sweet cream when served. This kind of cheese is quite sweet—the first described has some acidity from the presence of the buttermilk, and on this account is frequently preferred by the sick.

Grapes in Michigan.—A correspondent at Galesburg, Mich., writes us: "I have been for the last ten years engaged in cultivating the grape-vine at this place, with varied success as the season varied, but with general success. The season last past has been the poorest season for grapes within the ten years, for I only gathered about twelve hundred pounds from the same vines where I gathered two tons in 1863. S. B."

Remarks on Breeding Dairy Stock---III.

MESSRS. EDITORS—In my last letter it was stated that in the early and growing part of a cow's existence her milk-forming gland and the blood vessels leading thereto, are most susceptible of improvement. Attention was called to facts showing the peculiar expansibility of the organ and function by which milk is largely elaborated, to encourage farther efforts to increase the products of the dairy without a corresponding increase of expense. It is, however, of more importance to the country at large, that all shall learn how to raise heifer calves so that none shall lose the advantages which the best stock possesses. It is not every man who can take the most valuable calves from the best dairy cows and raise them in a way that will expand and utilize all their natural and acquired powers for the long secretion of milk.

If calves and young heifers are over-fed, as many Short-Horns and Devons have been, the cellular tissue in which fat is deposited, and the blood vessels supplying the same, will early attain a growth and a power in the system that will prevent, during pregnancy and before, the equal development of the milk-forming apparatus. This diversion, when it has become organic, is past remedy in after life. Then if you reduce the food of a cow she loses flesh and milk, and never augments the latter. The blood vessels that connect the heart with the lacteal gland, and the gland itself are both smaller and feebler than they would have been had the fat and flesh forming functions been less stimulated and developed in the plasticity of youth. "As the twig is bent the tree's inclined." Be careful to bend the twig aright for dairy purposes. To do so one must avoid alike both over and under-feeding. This, I believe, is the practice of those who raise the best dairy cows in the State of New-York.

Heifers from good dairy stock often require milking a week or more before the birth of their first calves, to avoid the caking of the milk, and the inflammation of the parts. Indeed, many old cows demand this attention; and their milk, drawn a month or six weeks before calving, has half-raised other calves by the time their own came into the world. Considerably more milk will be obtained, and the gland that separates it from blood will be improved permanently, if all severe pressure is taken off or rather prevented, by milking every eight hours, (three times in 24.) When it is seen that suitable food runs mainly to milk, there is little danger of over-feeding; while there is positive gain in the way of strengthening and enlarging all the parts concerned in this maternal office. By changing for the better each heifer, from one generation to another, in time the whole body becomes a perfect milk-forming machine; and then one has only to keep clear of deterioration by error or neglect of any kind. The best steam-boiler will explode and be lost, if neglected when driving the engine. Farmers run a large amount of complicated living machinery, and negligence does them more harm than any thing else. Young stock is often stunted and seriously damaged by being kept on poor pastures in summer, and on scant forage in winter. Neat cattle cannot but suffer in size, form, flesh and every other good quality, by the practice of semi-starvation. It is this that ever keeps down nature's efforts to elevate her offspring; while it fills the Union with millions of inferior cattle. Nature loves beauty and proportion; and we see these qualities in animals and plants which are not deformed by the lack of nutriment.

It is frequently remarked that "blood will tell." It tells oftener of neglect in the present than of skill in the past. A man who cannot appreciate gold and lead at something like the true value of each, may as well have a pound of the one metal as the other. For my own part, and knowing both, I should prefer giving $300 a head for choice dairy stock raised in Herkimer Co., to paying $10 for the common stock of Maryland. The Herkimers need not only a name and a record, but far more pains in weeding out, and more caution in letting in undesirable blood. In short dairymen must unite scientific breeding with legitimate dairy husbandry—raising dairy cows to be sent west and south for the multiplication of animals of this kind where they are greatly needed. As a man is permitted to set almost any price on his superior seed corn and wheat and finds willing purchasers, so men having seed that will produce the very best dairy stock in the world, can find buyers at generous prices. The farmers in England who paid Mr. Robert Bakewell $30,000 a year for merely the use of his rams (a breed made mainly by one man) did not lose money by the operation, because they understood the intrinsic value of blood of the right stamp. How small was the field of their enterprise compared with this continent, where we already have nine million cows, and need as many more!

District of Columbia. D. LEE.

Varieties and Profits in Poultry Keeping.

In answer to several inquiries, your correspondent, BROOKS, makes answer—First, as to making poultry *pay*, I know of no reason why 100 to 300 hens may not be kept with as much or greater proportional profit, as 10 to 30; that is, with proper care.

I have kept, for the last four years, from fifty to two hundred and fifty, *always* with profit, reckoning upon the following basis: Whatever is fed to them to be reckoned at market prices, whether bought or raised on the farm, and all eggs and chickens to be reckoned in the same way. I have found that one year with another the profit upon each hen that I may have on the first of March, has been from 50 cents to $1 per year. I have not, however, reckoned any cost for time or buildings, as I have taken care of them myself, as a pastime, mornings, noons and evenings, when resting from the labors of the day, and my buildings have not cost me more than thirty dollars for lumber. The work of construction having been done during rainy days, when most of my brother farmers are either doing nothing or gone to the village to talk politics or play checkers, I have made no account of.

I have tried several different breeds, but having found no one breed that was just the thing for my purpose, I have had recourse to crossing as follows: I obtained the best specimens of the White Faced Black Spanish, Leghorn, White Crested Poland and Java breeds to be found, without regard to cost, and after two years have just the fowl for my purpose, i. e., to raise eggs for market, selling of the chickens only the surplus cocks and least promising pullets.

The hens which I have thus obtained breed to two colors, either black or very dark grey, with fine large combs and wattles, yellow or dark slate-colored legs; are hardy and most excellent layers, averaging about

five eggs per week the year round; are good mothers, not wishing to set until rather more than a year old, and easily checked in this desire if wished. Of this cross I have at present about one hundred.

As to the Leghorn fowl, I would say that as far as I have observed, they are either white, grey or speckled, with large wattles and comb, the latter rather coarse grained, and coarsely serrated, usually erect, with yellow or very light slate colored legs—the white being much smaller than the dark grey and not as good layers. I do not now know of any one who has the pure-bred Leghorns at present.

In regard to the pure Bolton Greys, I had a few of that breed once, and never want any more of them, as although good layers, they are always poor, tough and dark-colored in flesh, and no one will buy them to eat the second time.

With a few hints in regard to the manner of keeping fowls, I will close this already too long letter. First, the hen-house must be light and warm, and kept clean and free from vermin; pure water and good food must also be furnished. During the winter season I keep the following constantly before my laying hens—equal parts of barley, corn, oats and buckwheat, in a box about seven inches deep, and of such dimensions otherwise as will hold about a week's supply for thirty hens, which by the way is as many as I allow to run together during winter in one apartment. To prevent the hens scratching out the grain, I put slats one way across the top of the box. During the warm parts of the year my poultry all run at large, as although I do not get quite as many eggs, they do not cost as much per dozen, and I find the fowls endure confinement during winter better than when confined the year round. For the last year my eggs have cost me during the summer and fall about ten cents per dozen, and fifteen during the winter, for which I have at no time received less than thirty cents per dozen, and for many dozen fifty cents. The above estimate of cost is made for winter upon the keeping of the laying hens only—for spring upon them and all other fowls over five months old.

I do not find raising chickens as profitable as eggs, although there is some profit, say from five to fifteen cents per chicken, according to one's luck in hatching and raising.

During the winter, hens that lay must have meat and a variety of vegetables; of the latter I find cabbage to be the best and cheapest. When thus cared for, eggs will be as plenty in winter as in summer, and will cost but little more. Another advantage of letting fowls have a free range during the summer, is that they pick a vast quantity of bugs and worms that would otherwise be hurtful to the farmer. I find that my apples are not near as wormy as when I came on to this place. This is quite an item when one has some four hundred trees in bearing condition.

As to one's finding it profitable to employ a man to look after the poulty, doing other work when not occupied with such, I am not able to say, but should think not, as a boy of a dozen or fourteen years, would do just as well with a little instruction, and could do many other light jobs about a farm, that a boy can do as well as a man. Of one thing I am very sure, namely, that without the strictest regard to cleanliness *no profit, but loss*, may be expected. I do not see the need of employing any one to take care of fowls, as I have had this year nearly three hundred, and have taken care of them myself, besides working my regular hours on the the regular farm work. BROOKS.

Devon Sale.—We learn that Mr. JACOB H. KNISKERN of Carlisle, Schoharie Co., has lately purchased from Captain JOSEPH HILTON of New Scotland, the Devon Bull Alexander, winner of the 1st prize at the late fair of the New York State Agricultural Society.

MY OAT CROP.

MESSRS. EDITORS—As Old Hurricane has given us the "loss and profit" of his last year's oat crop, with your permission I will give mine, or at least we will take two acres of it, and first let me state what kind of soil, and in what condition; the land was a barn lot, soil a yellow loam, a very steep side-hill, facing the south, so steep that its former owner would not plow it for fear that it would wash down into the swamps; it had not been plowed for many years, but mowed every year, and all taken off and fed in the stable; no manure returned except what the cattle dropped, and that, most of it, near the barn and fences, When I bought it I put a side-hill plow into it, and turned it over nicely, and planted corn. A better crop I never raised but once before; and thinking it too rich for oats, planted it again with corn last year, and had a poor crop from some cause, and this season sowed to oats—all three crops without any manuring.

OAT CROP—DR.

To boy and team to plow, 2 days, $1.75 per day,	$3 50
Nine bushels of Oats, 80c. per bush.,	7.20
Sowing the same,	50
Boy and team to drag and brush,	1.50
Cutting two acres,	2.00
Raking and carting,	2.00
Self and boy one day threshing with machine,	5.00
	$21.70

CR.

By 100 bushels of Oats sold,	$100.00	
Ten bushels saved for seed,	10.00	
		110.00
Profit,		$89.00

It will be seen that I have charged no interest on the land. I will let that go toward about a dozen bushels of oats that one of my Irish neighbors wasted getting *his* hogs out of them one rainy day, up to his shoulders in oats, just before I cut them; he thought himself lucky in getting them out at all, at all. And here let me say that I can endorse every word Old Hurricane said about hired help. I have been through the same mill, and I assure you it is anything but pleasant.

It will be seen that this is not the greatest yield of oats that ever grew, but it was a good one. Perhaps some may think that I made large acres, but when I bought it a good surveyor measured and pronounced it a few rods short of two acres. If I had sowed one bushel less seed, I think there would have been more oats; it was done to keep the oats from laying down; but 4 bushels is enough on any land, and 2½ bushels enough on some land.

I have now sowed this fall one bushel and three pecks of rye, and one bushel of timothy seed, on the same piece, and prepared it for the mowing machine, and wait for the result.

Bethlehem, Conn. L. F. SCOTT.

The Country Gentleman.—We are in regular receipt of this excellent agricultural paper, published by L. TUCKER & SON, Albany. We have long regarded the COUNTRY GENTLEMAN as the very best weekly publication in the United States. It is entirely devoted to agricultural affairs, each number containing the experience of practical farmers on subjects relating to farm management, agriculture, horticulture, &c. There is no department pertaining to the farm but is ably discussed by practical men, and we consider its great success is owing to this fact. Any person owning or working even the smallest plot of ground, or a garden, would be well repaid by a subscription to this paper. The practical hints, the useful receipts and general information, are worth ten times the subscription price to any man under such circumstances.—*Penn Yan Democrat.*

AGRICULTURAL READING.

It has long been our custom toward the closing year, to call attention as prominently as possible, to the beneficial influence of AGRICULTURAL READING, and to urge upon Farmers a more general and liberal support of the Periodicals devoted to their interests. Doubtless to many this has seemed almost like a work of supererogation. We recollect a year or two ago, after having gently criticised a very interesting and useful volume bearing upon the position, hindrances, and helps of our agriculture,—in that no more prominent place in the last-mentioned class, was given to the Agricultural Journal, and because there was, throughout, so little acknowledgment of its claims upon the farmer,—receiving from the author what he thought an ample explanation, resting upon the supposition that these claims were already universally recognized, and that there was consequently no need of asserting what everybody was ready to admit.

On the contrary, there seems to be no doubt that about nine farmers out of ten take no agricultural paper whatever, even if we include as agricultural papers, those which are very largely given up to other subjects. There is thus evidently great room and a great necessity for the extension of their circulation. To accomplish this object depends mainly upon those who voluntarily devote a portion of their time to procuring subscribers, since the majority of farmers who might willingly assent if requested in person, would probably never be reached by any advertisement of the publishers, however widely disseminated. Newspapers have eager friends to advance their interests, among those belonging to the same party, who are desirous of spreading the party doctrines. Religious journals have a corresponding influence among the churches of their own denomination, constantly working in their favor. But periodicals like our own are more than any others dependent upon disinterested exertions, put forth on the part of those who see the importance of an Improved Agriculture, and are determined to advance it by every means in their power.

It is gratifying to us to be able to bear witness to the number who have thus unselfishly devoted much time and labor in so good a cause. To them we owe, in a great degree, whatever success has attended our efforts during upwards of thirty years past; and each recurring New-Year has added new friends to their number. Another is now rapidly drawing near, and already the call for "specimen numbers" and the lists of subscriptions received, show that many, both old and new, are bestirring themselves in our behalf.

Our Prospectus and Showbill has just been sent out. In distributing so many, of course there may have been errors and omissions, but we trust those who may accidentally have been passed by, will pardon the oversight and apply for the "documents." And those who receive them, who have not heretofore been among our active agents, will very greatly oblige us by putting them to as good use as possible, calling the attention of their neighbors and townsmen to the character and aims of our Journals, and endeavoring to secure a club of new subscribers. If those who take the only copy sent to their respective post offices would each obtain but a single subscription, it would add several thousands at once to our lists, and their aid we particularly solicit, as well as that of all others who have occasion to meet their brother farmers from time to time during the six weeks to come.

CATTLE STATISTICS.

One very interesting lesson to be derived from the study of Agricultural Statistics, arises from the developments thus obtained as to the changes constantly taking place at any given point, in the objects for which farming is carried on. It is not only useful to determine the nature and extent of these changes, but they foreshadow to some extent what the future will probably bring forth, and may lead to measures calculated to advance or to retard their progress, as the one course or the other is esteemed advisable.

Dr. S. L. LOOMIS contributes for the Department of Agriculture, an article entitled the "Distribution and Movement of Neat Cattle in the United States," which affords a case in point. Tracing down through the Census returns of 1840, 1850, and 1860, the numbers of cattle reported at each of these periods in each of the several States,—he shows very distinctly and forcibly that with this class of animals, as with civilization—

"Westward the star of empire takes its way."

An analysis of the returns shows in the first place, that "in the United States every one hundred people require eighty head of neat cattle; that eight of these cattle must be working oxen, and that this requirement has not varied a single per cent. in thirty years; that twenty-eight of the eighty must be milch cows, and that this number has not varied one per cent. for the past thirty years."

Now taking the single State of Massachusetts as an example, we find that she has less than one-half the requisite number of neat cattle within her limits in 1840; in 1850, but about one-third, and in 1860 but about one-fourth the number required for the support of her population. She must therefore import her beef, butter and cheese, and from whence? "New-York, Pennsylvania, New-Jersey, Delaware, Maryland and Virginia," remarks Dr. L., "have not enough to supply their own wants. Massachusetts must, therefore, actually transport to supply her deficiencies from an immense distance. She must reach into our western regions, and out-bid in price all intervening demand. An interesting question here arises, and one of significance to her farmers: Cannot her worn-out and waste lands be made to produce beef, butter, cheese and milk, at a less cost than to transport so far? Cannot the money expended in trasportation and profits, be more advantageously disbursed within her own borders?"

Now dividing the States into three classes—1, those which contain less than the normal number of 80 cattle to each 100 inhabitants, and which may be styled the *minimum* class—2, those which contain between 80 and 100 per centum as compared with population, constituting a *medium* class; and 3, those containing upwards of 100 per centum, constituting the *maximum* class,—we find the respective classes clearly defined as follows:

1. The minimum class in 1840 included, (with the comparatively unimportant exceptions of New-Hampshire and Vermont,) all the territory from the Atlantic coast as far westward as the Chesapeake bay, the Potomac river, and the western limits of Pennsylvania.

In 1850, this minimum line had been carried "at least *five hundred miles farther inland*"—at that date commencing from "the southern limit of North Carolina on the Atlantic coast, and following the boundaries of that State and Tennessee to the Mississippi river, then up that river to the eastern boundary of Illinois, and by that to Lake Michigan." In 1860 this line continued nearly the same.

2. The medium class was a very large one in 1840, including nearly the whole territory not set down as minimum, with the exception of the extreme Southern and Western border. In 1850, the medium class of 10 years before had almost wholly passed into the minimum; and, in 1860, it included many States that were in the maximum class of 1850.

3. The maximum class has throughout been the remoter States of the South and West. In 1860, it was wholly situated west of the Mississippi, excepting only Vermont and Florida.

Excluding, however, the cattle of the Pacific slope, the half-wild cattle of Texas, &c., from the calculation, the requirements for consumption will be found to be 68 instead of 80 to each 100 inhabitants, and the following tables, constructed on this basis, show the respective deficiencies and overplus of the several States in 1860, as compared with their own wants for home use:

Number of Cattle required to make up the deficiency in 1860, in States not producing enough for their requirements.

	Head.		Head.
New-York required, ..	698,532	Rhode Island required,.	80,325
Pennsylvania, ...	581,223	Maine,.....	56,545
Massachusetts, ...	566,262	Dist. of Columbia,.....	50,303
New-Jersey, ...	265,695	Virginia, ...	47,889
Maryland, ...	212,985	Delaware, ...	19,076
Connecticut,.....	92,029	Wisconsin, ...	15,517

States Producing an overplus of Cattle, and the Amount of that overplus in 1860:

	Head.		Head.
Missouri, overplus, ...	354,603	Ohio, overplus, ...	46,790
Illinois,.....	325,270	Kentucky, ...	46,227
Florida, ...	289,275	New-Hampshire, ...	42,389
Georgia, ...	285,467	Louisiana, ...	35,400
Indiana, ...	256,581	South Carolina,.....	28,148
Arkansas, ...	252,561	Michigan, ...	22,473
Mississippi,.....	174,087	Kansas,.....	13,936
Vermont,.....	148,096	Utah, ...	12,887
Alabama,.....	125,346	North Carolina,.....	9,926
Iowa,.....	74,244	Nebraska, ...	9,228

The article concludes with a consideration of the probable changes effected since 1860 in the foregoing figures, owing to the war. But without taking up that question, what has been said suffices to show the extent of the deficiency in Cattle, in the older States, and leaves room to doubt, whether, with all the increase that has taken place in their numbers at the West, this increase is in fact adequate to the constantly enlarging demand in our more densely populated districts at the East. It is certainly no time for neglecting, either at the East or West, the propagation and improvement of this class of stock on a scale of the greatest practicable magnitude.

Short-Horned Cattle.—S. M. Fox, Livingston Manor, has recently sold to Hon. A. B. Conger, "Romeo's Juliet," roan, by Romeo, dam Garland 2d; "Wreath," roan, by Island Duke of Oxford, dam Gazette; "Vanity," white, by Oxford Lad, dam Chaplet; "Azalia," roan, by Duke of Gloster, dam Camellia, and "Darling," red, by Grand Duke, dam New-Years Day. And to Newton Carter, Hartford, Conn., "Chaplet," roan, by 2d Grand Duke, dam Garland 2d, and "Little Dorrit," red, also by 2d Grand Duke, dam Darling, by Grand Duke.

The National Garden at Washington.

Washington, D. C., Dec. 4, 1864.

The garden at Washington, connected with the Department of Agriculture, claims a share of attention from the visitor. It is under the care of the Superintendent, William Saunders, Esq., well known to all of our leading Horticulturists, and a gentleman well qualified in every respect for the position. The grounds at present cultivated comprise about six acres, perfectly level and very neatly and tastefully laid out—the walks are gravelled, with a grass border about one foot in width; a center walk goes from one to the other, with paths midway at right angles, and a drive about the whole ground, reserving on the outerside a border of sixteen feet for plants. Here we have growing, one of each kind of grape that has been obtained and suited for out-door culture in this latitude. A few plants of each kind of currant, gooseberry, raspberry, etc.—of fruit trees, there are one of each kind of the varieties, and it is his design to pursue this plan, so as to have one of each variety of all kinds of fruit *true to name*, scions of which only will be sent out into localities where they are not known. Strawberries also claim much attention. I am pleased with an idea of Mr. Saunders, which is, that instead of the farmers spending their time and means, particularly those in moderate circumstances, in setting out forest trees they should set fruit trees, for in ornamental gardening they can group their pears, apples, plums, etc., just as well, and if properly trained make them just as pleasing to the eye, besides receiving two-fold remuneration from them.

The garden heretofore, or rather when Mr Saunders took charge of it, was devoted chiefly to the raising of flowers and ornamental plants; he has materially reduced the stock, and is now increasing the supply of fruits as he considers it of more real advantage to the country generally to disseminate information regarding fruits than flowers—a very sensible conclusion.

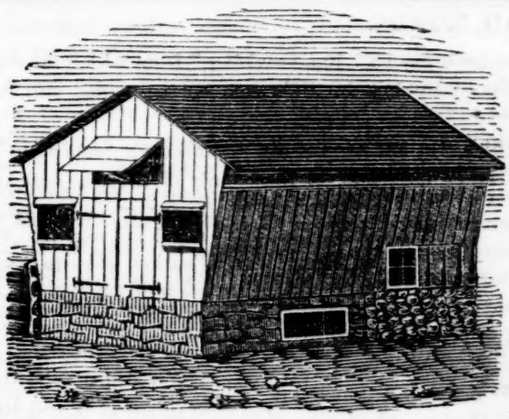
The hot and propagating houses, however, are well stocked with many choice plants, and the most perfect system in all the work is displayed; everything about them, either in doors or out, is scrupulously neat and clean, well ventilated and perfectly heated. He has established an orchard house to illustrate the mode, now becoming popular, of growing various orchard fruits under glass. Peaches in pots were a novelty to me, but if they can be raised so here we can have them in Minnesota. I noticed large thrifty trees, seven feet high, loaded with fruit buds, whose roots were in a box *twelve inches square*, and he told me they had *borne fruit in the same boxes and same soil, for three years, and the trees each year loaded with fruit.* Also that any kind of fruit trees would do the same thing. The secret of it is that any treatment which prevents the growth of roots prevents excessive growth of wood and consequently increases the tendency to fruit. He has a box about thirty feet long, one foot deep and one wide, in which I counted twenty-eight peach and apricot trees, from three to seven feet high—this stands on top of the ground, and the trees are in splendid condition. Now it will be but little labor for us in Minnesota to have the same luxury. We can plant the trees in pots or boxes, and in the fall place them in our cellars, and as soon as frost will permit in the spring, plunge the pots into the ground. One hundred trees could easily be stored in a day, and what a luxury every farmer might thus enjoy.

O. H. KELLEY.

RENOVATION OF OLD PASTURES.

I am aware, Messrs. Editors, that there is an antipathy among our farmers in regard to the improvement of their old pastures. Especially is this the case in New-England, where the pasture lands are mostly rocky, and of very uneven surface. In some sections these lands, after becoming useless, or nearly so, are given over to the raising of wood. In other sections more remote from good markets of wood and timber, it is very desirable that these old pasture lands be renovated. No part of the farm is more useful or profitable than good pastures, and no part of our farms as a general thing is more neglected. It is a sad and pitable sight to ride over some districts of our country and see the poor old, abused, exhausted pastures, grown over with briars, weeds and bushes. "'Tis enough to cause the tear to flow down pity's cheek." While farmers are giving their attention to draining, composting manures, and other sources whereby they can improve their tillage lands, their pastures have been neglected, and most shamefully abused. No part of the farm requires to a greater extent the light and benefit of modern scientific agriculture. This topic has been brought before the farmers of New-England the present season with increased force, as the scorching suns and the want of refreshing rain have partly ruined their pastures. They have had to resort to various ways of supplying their cattle with necessary food. If our pastures were occasionally supplied with the elements of fertilization which we have extracted from them for years, in the shape of bone, meat, muscle, milk and wool, then it would not be imperatively necessary to resort to foddering in the July and August drouth. But how are we to improve our pastures is the question? For many of our old pastures have been hard run with rye and no manure. Rye will continue to yield small crops, just enough to repay the labor for many years in succession, and land may be reduced by it lower than by corn and many other crops. The mosses usually cover such a soil and plowing without manuring does not much improve it, though nothing but grass seed is sown. I have witnessed in some cases the sowing of pastures with both rye and grass seed, and feeding off the whole. This is much better than to reap the rye for grain. It would not be convenient to manure pastures with animal manures from the barn-yard, unless they were plowed up and cultivated. As the most of our pastures cannot be very conveniently cultivated, this mode of renovating cannot be resorted to. The scarcity of labor would have some influence in deciding against the plan, even where the plow could be used. Harrowing answers a good purpose when the sward needs loosening; this can be done at any leisure time, and the cost need not be great. Southern clover and red-top should be sown, together with a little Dutch clover or honeysuckle. Two pounds of this latter will do for an acre, as it spreads rapidly where the soil suits it. Of the many fertilizers that we can apply to our pasture lands, none stand forth fairer for cheapness and beneficial results than gypsum, providing the soil is of the proper kind to be improved by it; and this cannot be positively known, except by an actual trial of the article. A single bushel should be sown on half an acre by any farmer, and his own eye to examine the results will be more certain than all the analyses that have ever been resorted to. A trial of this kind may be made by the poorest farmer without feeling the expense. Two bushels are enough for an acre, and once sowing lasts four or five years, consequently it is the cheapest article ever bought as a manure. It can be easily sown upon our most rocky and hilly pastures where the plow cannot run, or other manures easily be carried. Its effect is to bring up the grass thick and luxuriantly, and to kill out the small bushes. Clayey loams are the soils that are the most benefitted by it. Gypsum is composed of lime and sulphur with a proportion of water, forming nothing more or less than a sulphate of lime. That which has the most sulphur in it is to be preferred. It can be tested as to quality in various ways; but the easiest and surest way for the farmer is to put a small quantity into a skillet and heat it over the fire. Good gypsum will then emit a strong sulphurous smell. Cattle are so fond of the feed where gypsum is sown, that they help very much to kill the bushes. But a reform is needed in all our pasture management. To commence with, it would be much better when land is cleared of wood to let the brush rot upon the ground instead of burning them, providing the quantity was not too large. I can testify from actual observation that the burning of the soil injures it for years, for most crops, and for grass especially. Then we do not seed with a sufficient variety of grasses. In England we find their best pastures to be originally laid down with a greater variety of grass than we ever think of using. Many farmers overstock their pastures, thus carrying from them much more than is returned. It is not the part of wisdom to feed pastures too early in the season before the grass gets sufficiently started to make a vigorous growth; or to feed them too late, so as to have the roots uncovered and unprotected through the inclemency of winter. A greater part of our pastures are *shamefully neglected* by allowing bushes of all kinds, together with brakes and briars, to usurp the place of grass. We know of many pastures where these intruders take up at least three-quarters of the ground; so that while the owner claims that his cattle have the range of twenty-five acres of pasture, they really cannot graze but about eight acres of grass, for there is not more than that space occupied by grass. A little labor and attention in clearing the land of these pests would conduce much both to the beauty and profit of the premises. There should be more attention paid to supplying our pastures with good, wholesome water; because cattle will sometimes drink out of a mud hole does not prove that they should be *compelled* to do so.

Cattle will flourish much better if supplied with an abundance of cool, living, running water. Let a trough be centrally placed in the pasture, where cattle can easily, and at all times, find an abundance of good water. The old saying "that a stitch in time saves nine," is nowhere more applicable to farm management, than to the building and keeping in repair of the fences. A thorough farmer will never entice his cattle to be unruly by putting up a "shoddy" fence, or suffer a good fence to get out of repair. Here eternal vigilance must be the watchword of the farmer, if he would have peaceable cattle, or feel a security for his crops. Thus, Messrs. Editors, I have roughly sketched some points of pasture management, wherein a little thinking, a little work, and a good deal of determination on the part of some farmers, would work out a much needed and lasting reform. Do not postpone till the hereafter, a work of so much importance. Now is the time to commence. Let alike the motives of economy, pride and beauty urge us on to the good work. W. *Cheshire Co., N. H*



CHEAP PIGGERY AND CORN-HOUSE.

The above illustration of a farm-building is designed for a small farm, where only a few hundred bushels of Indian corn are raised, and where only a few swine are kept.

It is 14 feet wide at the base, and about 16 feet wide at the plates, and 20 feet long, and 8 feet to the top of the plate. The frame is built in the balloon style, except that the studs at the lower ends are mortised into the sills; inch boards, 6 inches wide and 16 feet long, are nailed on the studs for joists, which make the upper floor come just to the lower side or bottom of the door, in the gable end of the building, which is hung on hinges to open upwards. A door of slats is made in the end of each crib, as shown in the end of the building; and the ears of corn can be shoveled directly into the cribs from the wagon, on to the main floor, or into the attic window.

The doorway is about 8 feet wide, and the cribs 3 feet wide on the bottom, and ventilators placed lengthwise in the cribs.

The building was erected on a substantial stone wall, and in the rear of the building is a door to enter the feed room, which is six feet wide and fourteen feet long.

The appartment for the animals is about 14 feet square, and the three-lighted window in the wall opens into the apartment of the swine, and the four-lighted one into the feed room.

On the opposite side of the building is a window into the feed room, and a door where the animals enter their sleeping and feeding apartment.

The apartment of the swine is 4 feet high in the clear, while in the feed room it is 6 feet in the clear; and there is sufficient room for swill barrels, meal-box, and a small furnace for cooking food if desirable

THE PARTITION AND TROUGH.—A trough made of plank 10 inches wide and 4 inches deep—which is sufficiently deep for holding all the swill that will be fed at one time—extends entirely across the pen, between the feeding room and the swine's apartment. The partition is made of a *flap door* or kind of board gate, hung on hinges, directly over the trough, to a sleeper or beam overhead. The bottom of the flap can play from one side of the trough to the other, and a wooden button holds it at either place.

When feed is put into the trough, the flax is fastened to that side of the trough near the swine; then as soon as their feed is arranged in the trough the flap is drawn to the other side of it and secured with with a button, when the swine all come up to the trough.

At one end of the flap there is a small door where one could enter the apartment of the swine from the feed room. Directly over the trough is a small door, about 2 feet square, through which grain can be obtained from the floor of the corn-house.

The floor of the corn-house is 20 feet long; but a portion of it, 6 feet long, which is over the feed-room, is 2 feet higher than the other part, which is about 12 feet long and 8 feet wide, which affords ample room for assorting corn or for thrashing it with a machine.

A few loose slats are placed against the studs on the inside as the cribs are being filled, and when it is desirable to get ears out of the crib are slipped a little endways with a crowbar, and the corn will slide out as fast as it is shoveled away, and no faster.—S. E. TODD, *in Tucker's Annual Register.*

Reed Bird or Boblink---*Dolichonyx oryzivorus.* Sw.

"General color of *male* in spring black; the nape brownish cream color; a patch on the side of the breast, the scapulars and rump white, shading into light ash on the upper tail covers and the back below the interscapular region. The outer primaries sharply margined with yellowish white; the tertials less abruptly; the tail feathers margined at the tips with pale brownish ash.

"*Female* yellowish beneath; two stripes on the top of the head, and the upper parts throughout, except the back of the neck and rump, and including all the wing feathers generally, dark brown, all edged with brownish yellow, which becomes whiter near the tips of the quills. The sides sparsely streaked with dark brown, and a similar stripe behind the eye. There is a superciliary and a medium band of yellow on the head.

"Lenth of male, 7.70; wing, 3.83; tail 3.15." BAIRD, Pacific R. R. Reports, Vol. IX, p. 522. IB. B. N. Amer. p. 522.

The familiar bird of which we propose to treat in the present article, receives different names in the different States that he frequents. Thus he is called the "Boblink" in the Eastern States, the "Rice-bird" in New-York, and the "Reed-bird" in Pennsylvania and the Southern States. Of these names, perhaps the first and the last are the ones by which he is most generally known.

This charming little bird has been called the "Skunk Blackbird" by some one evidently not a lover of birds, on account of the similarity of the plumage of the male bird in the the spring to the American skunk or polecat.

The Illustrated Annual Register of Rural Affairs for 1865, like its predecessors, is as full of good things as an egg is of meat. Every page contains something new and valuable, and the hints and suggestions for the farmer, orchardist, bee-keeper, nurseryman, poultry raiser, dairyman and housewife, will be worth many times the price of the work, which is sent by mail prepaid, for the very low price of thirty cents. It is embellished by one hundred and thirty new engravings, which greatly assist a correct understanding of the text, and we wish it might find its way into every farm house in Maine. Published by Luther Tucker & Son, Albany, N. Y.—*Maine Farmer*

GOOD AND BAD ROADS.

Our ILLUSTRATED ANNUAL REGISTER for 1864, contains an essay on "Road-making," from which we copy the introductory paragraphs, together with the illustrations, showing the difference between good and bad roads:

The roads of a country are not only necessary to its civilization, but are certain and accurate tests as to its degree. In savage and barbarous countries there are either no roads, or those only of the simplest and most imperfect character—mere paths for the hunter to wend his way in. But the wants of civilization require roads for the transportation of produce to its market, and the conveyance of passengers for travel or pleasure.

Fig. 1.—*Traveling on Good Roads.*

It is said by high authority, (Gillespie,) that the common roads of the United States are inferior to those of any other civilized country. Whether this remark is perfectly true or not, it is positively certain that a majority of them are miserably and needlessly poor, especially in the newer parts of the country.

If the road-makers had gone to work with the intention of throwing obstructions into them, they could have hardly succeeded better. Loose stones, from 100 lbs. downwards, lie thickly scattered over their surface, destroying the wheels of the passing vehicles, and frequently seriously injuring the horses—lessening the amount which a team can draw, in many instances, fully one-half. These loose stones do every day more damage than the whole expense of removing them from the road. How the community endure this intolerable nuisance, it is difficult to imagine.

Fig. 2.—*Traveling on Bad Roads.*

In the spring the most of our roads are either a canal filled with mud and water, more fit for a boat than for wagons, or else are an almost impassible quagmire, in which there is imminent danger of sinking into the lower regions. And when the water has a little subsided and left dry ground, then ruts, innumerable and almost unfathomable, fill the road, its entire length and breadth. The cobble stones drawn in previous years, are eagerly sought out by the exploring wheels, over which they go creaking and crashing, like a ship in a storm.

Fig. 3.—*Cross Section of Bad Road, with deep Wheel Ruts.*

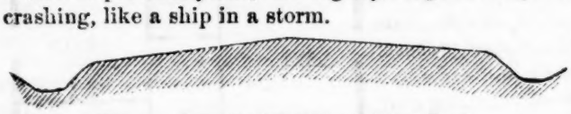


Fig. 4.—*Cross Section of Good Hard Road.*

Our people are generally sharp for a bargain, and mean to get the value of the money they spend, and do not often stand at the expense of any undertaking if they think it will PAY. How this most important subject of road-making should come to be utterly neglected, is one of the mysteries difficult to understand, and two things are very evident:—1st. There is a great lack of appreciation of the value, in an economical point of view, of good roads; and 2d. There is a great want of proper knowledge in regard to their laying out and construction.

The office of "pathmaster," (road overseer,) is often taken in rotation by the different inhabitants of the district, and in consequence there is no system or intelligent use of the means at hand for their improvement.

Before we can expect to have good roads, the people must be convinced that good ones are cheaper than poor. If this idea was thoroughly understood and believed, it would go far towards effecting the desired change.

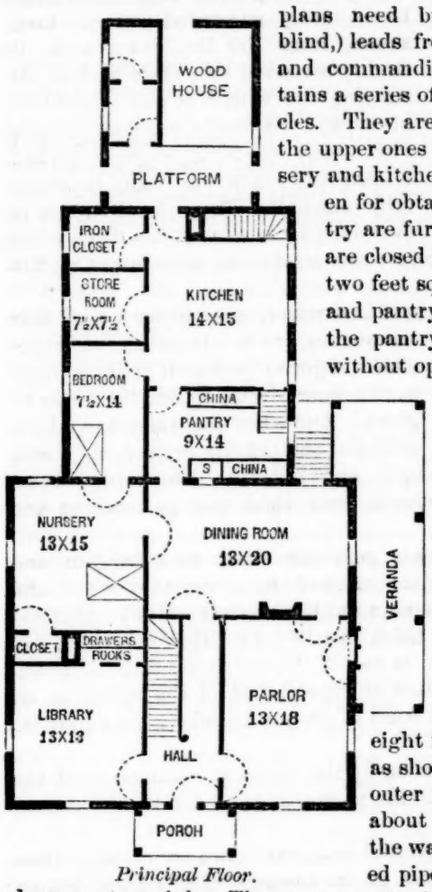
OLD APPLE TREES.

It is well known that orchards, after they have obtained an age of 50 or 60 years, often begin to decline, and an apple tree 100 years old is a rarity. Under favorable circumstances, however, the most hardy varieties have attained even a greater age. A gentleman from Ohio, well known as a successful and intelligent cultivator of fruit, who has recently spent some time in the State of Rhode-Island, informs us that he examined several trees of the Rhode-Island Greening in Hopkinton, in that State, which he ascertained to be 140 years old, now in full vigor and bearing. He measured the trunk of one of them 3 feet from the ground, and found it to be 8 feet 2 inches in circumference, or 2 feet 8 inches in diameter, and another had a spread of branches more than 40 feet in diameter. A single crop on one of them had been sixty bushels. This fact shows the hardiness and longevity of the Rhode-Island Greening, and its value for durable orchards.

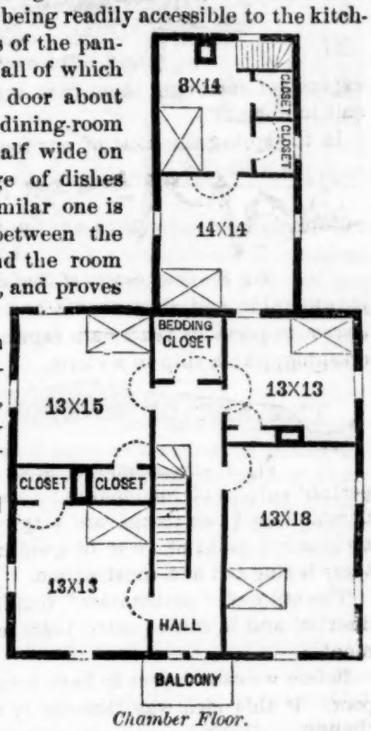
AN EDITOR'S RESIDENCE.

The plans and view here given, represent the residence of our friend and associate editor JOHN. J. THOMAS, at Union Springs, Cayuga county, and are published in the current number of the ILLUSTRATED ANNUAL REGISTER.

The house was erected some years since. It is built of wood, with the walls filled in with brick. The plans need but little explanation. A double door, (the outer a Venetian blind,) leads from the parlor to the veranda, in front of the ornamental garden, and commanding a view of Cayuga Lake, half a mile distant. The nursery contains a series of drawers, set even with the wall, for containing miscellaneous articles. They are nineteen in number and placed in five series, one above another, the upper ones being small and the lower ones large. The bed-room between nursery and kitchen may be used as a bath-room, being readily accessible to the kitchen for obtaining heated water. The walls of the pantry are furnished with continuous shelves, all of which are closed with tight, narrow doors. A door about two feet square, breast high, between the dining-room and pantry, having a shelf a foot and a half wide on the pantry side, admits the free passage of dishes without opening the common door. A similar one is placed in the second story, between the room over the dining room and the room for domestics over the kitchen, and proves a great convenience.



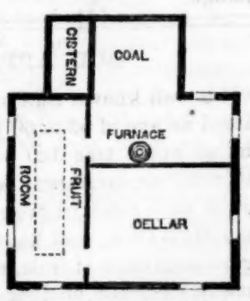
Principal Floor.



Chamber Floor.

The observatory shown in the perspective view, commands an extensive prospect, including many miles of Cayuga Lake, the surrounding country and distant blue hills.

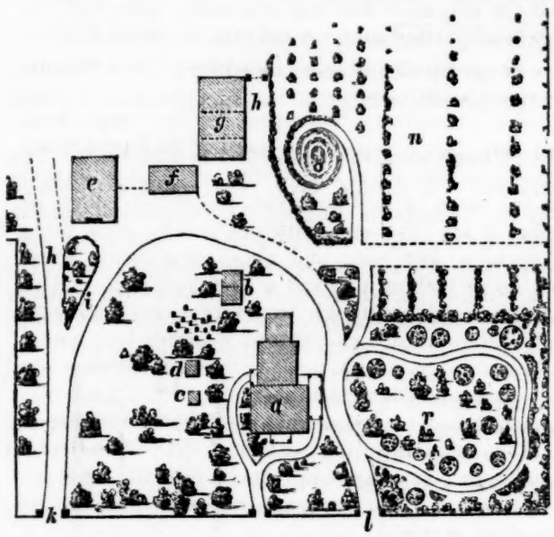
The basement is finished with a smooth floor of hydraulic cement, and is divided by eight inch partitions into three rooms, as shown in the annexed plan. The outer one contains a stone cistern about six feet by ten feet, from which the water is drawn through an inclined pipe by a pump in the kitchen placed over a stone sink. The same room is also used as a coal-cellar, and contains the hot air furnace. Adjoining this is a room for the general purposes of a cellar. It contains a set of hanging shelves, a safe for articles of food, tight boxes for vegetables, &c., the latter being packed in fine damp moss. The third apartment is the fruit room, about 12 by 28 feet. The shelves for containing the fruit are 5½ feet wide, and extend nearly the whole length of the apartment. The lower shelf is a foot from the floor, the other two with spaces of 2 feet between the shelves. The passage extending around allows free access for filling, picking over and selecting. The upper shelf being in a warmer stratum of air, should be furnished with lids to prevent evaporation and drying. Pears ripen finely on the lower shelves with a thick covering of woolen blankets.



Basement on reduced scale.

This house stands on a small farm of about 60 acres, on one of the outer streets of the village, and the adjacent grounds of about two acres are represented in the annexed engraving. L. is the carriage entrance from the

street, K. the entrance to the farm and barns. R. represents the ornamental garden, consisting of a closely shaved turf, through which the curved walk passes, and in which circular and irregular flower-beds are cut. Seats are placed under the trees, and a summer house in the remote corner. In the rear of this portion, and separated by an evergreen screen is the kitchen and fruit garden *n*, containing rows of dwarf apples, dwarf pears, and the smaller fruits, so arranged that the cultivation can be performed to a considerable extent by a horse. A natural depression at *o*, about 30 feet in diameter, and 8 feet deep, with a curved walk to the bottom, is planted as a secluded flower-garden. On the other side of the dewelling *a*,



and nearly hidden by trees, are the smoke-house *c*, the ice-house *d*, the children's play-room and tool-house *b*, and between them a group of bee-hives. The road *i*, extends to the carriage shed *f*, and the horse-barn *e*, and *h h* to the orchard and farm—*g* represents the farm-barn.

THE ART OF MAKING VINEGAR.

Messrs. Editors—There are many reasons why the art of making vinegar, by the quick, scientific process, should be universally known, a few of which I will name: 1st. It will drive out of the market diluted oil of vitriol, now extensively used under the name of vinegar, to the destruction of human teeth, the injury of the bones and of general health. Twenty dentists are now required to take care of the damaged teeth of a population that would have employed only one 40 years ago, when vinegar was *acetic acid* derived from a vegetable source, unadulterated by any mineral acid or poison.

2d. Acetic acid in hard cider, and in many other forms, has long been known to prevent jaundice, billious fevers, constipation of the bowels, ague and fever, and other not uncommon maladies. In a word, if properly used, vinegar is a fruit and plant acid of inestimable value, and no more need be said in its favor in this connection.

The fermented juices of apples and sorghum are the best materials for making pure and pleasant diluted acetic acid. In both, sugar is changed into alcohol by vinous fermentation, and this alcohol is changed into vinegar by the acetous fermentation. It is the last named chemical action that I hope to make plain to every reader. Acetous fermentation is simply a chemical union of oxygen or vital air in the atmosphere with elements in alcohol, (carbon and hydrogen,) that transforms the alcohol into an *acid*. Perfectly pure, this acid is a solid; properly diluted, yet pure as regards all other acids, it is vinegar. Why should a full, tight barrel of worked cider often keep from souring into vinegar two or more years in a good cellar? Because the oxygen, which is indispensable to convert cider into vinegar, is outside of the barrel, and passes through the wood that surrounds the cider very slowly. Hence the cider turns sour with equal tardiness. Now bring the cider and atmospheric air together in a proper manner, and all the alcohol will be oxydized or acetified at once. I have converted barrels of cider, and of the juice of Chinese sugar cane, into good vinegar in this way:

Make two stout benches, as high as a barrel, and strong enough to support two poles or fence rails, with notches on the top to receive four or five barrels of cider. Each barrel of cider must have before it an empty barrel, with one head out, into which the cider must run by its own gravity. Before it gets to the bottom of the empty barrel it passes over a large surface of common wood shavings, and it is this areation that enables the oxygen of the air to unite chemically with the alcohol, and transform it into vinegar.

As the warmth of summer favors the souring of milk, it equally promotes the souring of cider; hence a warm room is best for making vinegar.

The way to arrange the shavings is important, and must be described. Let the reader imagine he sees the four posts of a splint bottom chair, full of rounds, standing in a barrel, and coming up to the top of it. It is easy to lay sticks the size of candle rods across the rounds, or frame work of the posts, that will support a layer of shavings 3 or 4 inches in thickness. Above this another layer of sticks supports more shavings. By this arrangement the upper half of the barrel is filled with loose shavings, while the lower half is used only to hold the cider that comes trickling down through the shavings.

I make this frame as follows: Saw off an inch board and get a piece just as long as the barrel; from this split four pieces for the posts, about 1½ inches wide. Bore holes with a half inch auger near the center of each post, and others near the top. Small sticks a foot long, and two sticks at each end fasten two posts together, and form the ends of the frame. The posts are set up in the barrel to get the length of the other four cross ties, on which the rods that support the shavings are to rest. This done, four holes are bored through the other sides of the posts, one near the middle, one near the top, and two between. Into these, cross-ties or sticks are put to complete the frame. It is set up in the barrel, and some six or eight small rods placed on the lower rounds. These rods reach to the sides of the barrel, and are covered with shavings. More rods and shavings are placed above till the barrel is full in its upper half. This upright barrel should stand high enough from the floor to draw vinegar or cider into a milk pan or other vessel at its bottom, for the liquid must pass many times over the shavings and be returned into the barrel from which it first starts, before all the alcohol will become vinegar by this process.

Pains should be taken to distribute the cider well over the first layer of shavings. I have done this by using an old baking tin punched full of small holes; and I often spread the cider on an inclined board as it runs in a small stream from the faucet to the shavings—areation being the main object. Without warming the cider, and by its own gravitation, I generally get vinegar in two or three days. As in making beer and light fermented bread, one may be disappointed. Cold is the most common cause of failure. If a woman wets

dry yeast-cake with cold water, adds flour and more cold water, and sets her yeast to rise in a cold place, no chemical action ensues. With lively yeast dough will not rise well in the cold.

Placed in a cold pantry, a loaf of moist, light bread will dry up before it will *sour*. These facts show that cold prevents both vinous and acetous fermentation. Hence it may be necessary to warm cider in a brass or copper kettle before trying to sour it. After chemical action has fairly commenced, if you keep the little stream of cider running—the flow of alcohol—it will continue to burn into vinegar by its own evolved heat. The shavings in the barrel soon get quite warm from the oxydation of alcohol, and keep so until the spirit fails as fuel.

In converting whisky into vinegar, yeast is mixed with the diluted spirit; and I use a little yeast in making sugar cane cider into vinegar. I think it best to boil two barrels of cane juice into one for vinegar.

In place of shavings, I have hung both pine and chestnut boughs, top down, on rods in barrels, and made cane cider spread out over their surface, to be transformed into vinegar. This plan does well, but has no advantage over shavings.

To enterprising young farmers I would say, you can make a large profit by raising cucumbers for pickles, making vinegar from sorghum or sugar beets, and putting your pickles in market ready for the table. The hungry million will consume an incredible amount of this article if fairly set before them. Pickled tomatoes are a very healthy fruit, and capable of large and cheap production. Vinegar, as a preserver of both fruits and vegetables, has an undeveloped value of great importance.

Washington, D. C., Nov. 28, 1864. D. LEE.

TICKS, AND HOW TO KILL THEM.

Winter is now upon us, and ticks are something that will not pay to winter, and the cheapest and most expeditious way to kill them is the best.

Well, the best way is by smoking them with tobacco. Take a common hand-bellows, costs but a few shillings, and attach a metallic tube one and a half inches in diameter and six inches long, with a perforated partition near the further end, to prevent the burning tobacco from being blown into the wool with the smoke, and on the end next the smoke chamber attach a nipple-shaped tube, to conduct the smoke into the wool.

No solder should be used in making this tube, as the heat from the burning tobacco will melt the solder; but if you have no smith near but a tin-smith, then wind the tube with old cloth, kept wet to prevent unsoldering; the one we use cost us twenty-five cents at the tin-smith's, exclusive of hand-bellows, which is a family relic reminding us of the days previous to friction or lucifer matches. The tin tube is lapped or hooked together, instead of being soldered, and attached to the bellows by a wooden plug inserted into the tube, and tube of bellows inserted into the plug sufficiently firm to hold the apparatus to the bellows while being worked.

Two persons are required, one to hold the sheep and the other to work the bellows, inserting the smoke-tube well into the wool in spots all over the sheep, or where the ticks mostly borough. A puff or two in a place is sure to kill; then go over again when the nits are hatched.

The cost of material (cut tobacco, or as we prefer a better, the unmanufactured or raw material,) is about one-half cent per head. The time, about five minutes to each sheep; the same time as required in dipping, or rather the time of holding the lamb while being drained.

The expense of Lalor's sheep-dipping composition, for 100 sheep, is $3, leaving a balance of $2.50 per hundred in favor of smoking with tobacco, besides incurring no risk. GEORGE BACHELDER.

Stanstead, C. E., Nov. 23, 1864.

HOW TO TRAP MOLES.

EDS. CO. GENT.—In answer to the query of W. S. C., p. 224—"how to exterminate moles," I would say that the only successful way is to catch them, and the way is *simple and sure*. A lad that can make and put into successful operation a "figure-four" deadfall, can construct a mole trap.

Take an ordinary fence post, six feet long—with two nails fasten a piece of board or old barrel stave across near one end to keep it from swaying when set; on the same side of the post, and within 12 or 16 inches of the other end, with one nail fasten a piece of board a foot long and about two inches wide. Within an inch or inch and a half from each end of this piece, drive through two very sharp 3-16 wire spikes—two at each end—about 8 inches long and ¾ inch apart. Now with the "figure four" it is ready for operation. Make the inner end of the horizontal spindle broad or spoon shaped—have a number of small notches near the bottom of the perpendicular spindle, and so shape the shoulder in the long one that it will catch in them, and not slip up when the inner end is raised.

The mole has some main thoroughfares that he travels often, and many travel the same road. Know one of these by setting your foot on it, and in six or eight hours he will have raised the dirt across your foot-track. In such a place set your trap, and so that the spikes in either end of the cross-piece will drop directly in and through the hole. Press down the dirt pretty tight midway between the spikes—have your spindles so adjusted that the broad end of the long one will rest directly on the ground over the closed part of the hole. Coming from either way, he finds his hole closed, and rooting up the ground, raises the spindle, springs the trap, and lo! he is nailed "tighter than a brick."

With a number of these traps and a boy to tend them, you may soon rid your premises of moles, and collect enough of very fine fur to trim your ladies' garments, make caps, gloves, &c.

You can make one in less time than I am telling you, and they are more successful than any patent steel fixture that was ever put in their hole.

Omaha City, Neb. "DOE" SMITH.

Cob-meal.—I have read your article from the Utica Herald with much surprise, as my experience with cob-meal during the past year has been so satisfactory that I concluded this fall to try it exclusively in fattening a pen of hogs, and the result is, a better lot, and ready to kill a month earlier than last year, when fed on corn in the ear. In feeding horses I mix one-third cob-meal with two-thirds mill feed. I have an iron mill which one horse easily works, attended by a boy, who can readily grind 40 bushels per day; I procured it of R. Sinclair Jr. & Co., in Baltimore. T.

Swansea Park, Md.

Oats, Corn and Cob-meal for Horses.

MESSRS. EDITORS—"F. H. A." in the COUNTRY GENTLEMAN of Nov. 27th, makes some inquiries in regard to feeding Indian corn to horses, rather than selling his corn and buying oats, and also in regard to the use of corn and cob-meal, to which you request a reply from readers who have experience on the subject.

In the corn growing States of the South and West, Indian corn constitutes the chief grain for horses, and indeed for all farm stock. The kind of corn grown in these States is somewhat less nutritious and much softer than the "flint corn" of the more Northern States, and hence it may be considered better suited to horses and other stock than the Northern varieties are. Many of these farmers grind their corn, cobs and all, and think there is an advantage in it, and undoubtedly there is. The cob may contain as much nutritive matter, as the same weight of common hay, not more, yet where mills are convenient that are adapted to grinding both corn and cob, it is done at not much greater cost than is required to shell the corn, so that if there is nothing really injurious to the stock in the ground cob it is better to grind it. It has been stated by some farmers that the hard, glassy portions of the cob are liable to irritate the stomach and intestines of the animals, which sometimes results in serious consequences. This may be more or less the case according to the degree of adaptation of the mill to the purpose. For ten years in the West, I ground all the corn with the cob that I fed on the farm to both cattle and horses. The grinding or crushing was done in a mill of peculiar construction. It is called "Rowe's Crusher." The grinding is done by two iron wheels, two and a half inches thick, with bevel edges revolving in a circular, concave trough, not unlike an ordinary linseed mill. The shaft is loaded with great weight, and the cob, and even the husks are ground quite fine. Besides my own experience in the use of this meal, two German dairymen ground the corn for forty head of cows each. With the cob thus ground I never discovered any injury resulting to the stock, and believe as others did that there was great advantage derived from the grinding, not only because the ground grain was rendered more thoroughly digestible, but because it could be more intimately incorporated with the cut hay or straw, which I consider the the only proper manner of feeding grain to either cattle or horses. Of course every farmer wets his hay or straw before adding the meal. If your correspondent is required to travel eight or nine miles to the mill, and then pay the ordinary toll, it may be questionable whether he will profit by the operation. In earlier times, grinding corn and cob in a common bark mill, was much practiced by Western farmers and dairymen, but these soon gave place to the more improved mills that have been invented, but none of them do the work so thoroughly as the Rowe's Crusher.

In feeding corn on the cob to horses, as is the common practice in the West, the corn, in the dry part of the season, becomes very dry and hard, and the horses teeth are liable to become sore from eating it. Before I had a mill for grinding, I adopted a method for soaking the corn in the ear: I employed two sets of casks, which were filled with corn and water; and, when feeding from one set, the corn in the other was soaking. It becomes sufficiently soft for feeding in two days, though in cool weather it will keep sweet eight or ten days, and improve by standing. In this state the horses relish it much better than when fed to them dry and hard. The cobs when soaked through are frequently eaten entirely up.

Where grist mills are convenient, and tolls not excessive, I should prefer grinding the grain and feeding it with cut hay while wet. In feeding corn with cut hay, as your correspondent suggests, the corn is liable to settle to the bottom of the trough, and horses would be apt to throw out the feed to get at the corn. With this difficulty obviated by a deep trough, I would even prefer feeding the corn in this way rather than feeding it separate, where it is not convenient to grind it.

H. P. B.

CULTURE OF TURNIPS.

EDITORS OF CULTIVATOR—Seeing a premium offered for essays upon Turnip culture, I will give my experience in raising turnips the past season. I had not a very large large piece of ground. I think its dimension was, in rods, 8 by 4. I plowed the land in the spring when I plowed for potatoes. Then about the 1st of July plowed again; then in about two weeks I drew about fifteen loads of fine manure, and spread the whole ground evenly, covering it entirely, plowing it in as soon as possible, and in a few days plowing lightly, and sowing my seed the third week of July, with plaster. I sowed about a thimble full to the square rod, of the common field white and yellow turnip. The result was a great yield of turnips, and the largest that was ever raised in this vicinity, some of them measuring in diameter 9½ to 13 inches—a good many of them measuring from 24 to 38 inches in circumference—all sound, and as brittle as any I ever saw. I harvested from the ground over 180 bushels of topped turnips. This is what I actually raised, measuring them all. I could find bushel after bushel where ten of them would round a bushel basket full. I have other crops that have done finely, and have paid well; but have had no crop that has paid as well as this. Turnips in our street market sell for fifty cents per bushel. I am feeding three head of cattle with them, cutting them up and mixing with meal. I never have seen cattle feed better. I think there is no danger of cloying cattle fed in this way. Turnips digest soon, and must assist in digesting the meal; at any rate the cattle are ever ready for their mess, and are laying on fat as fast as any cattle I have fed or have seen fed. I am glad that the subject has been called up. I hope the competitors will give the readers of your papers their practical knowledge, that people may have facts, not fiction.

Litchfield Co., Ct. C. H. STONE.

The ANNUAL REGISTER OF RURAL AFFAIRS for 1865 vindicates the reputation of its predecessors and the claims of its editors. It should be the companion of every farmer and gardener, practical and amateur. This is the 11th year of its issue, and the set must be almost a complete agricultural and horticultural library in itself. The number for the new year is full and valuable on rural architecture, and pruning and other care of orchards, with illustrations that make the text plain to him who reads it.—*Springfield Republican.*

Foreign Notices.

Soaking and Coating Seeds.—A Frenchman has made a great discovery, which is announced with all the laudation and display generally attending such events in that enthusiastic country. It "simply consists in the previous preparation of seeds by steeping them in a certain liquid, which imparts an extraordinarily revivifying force, and enables them to contend successfully against all the evil influences to which they are subjected after being committed to the earth." This liquid "forms around the grain a thin covering of quite a peculiar nature." Its use is to obviate entirely the necessity of manuring the land; and, "by the outlay of a few francs, a small barrel of the liquid can be obtained, which can be easily carried to any desired spot, and which is sufficient to prepare seed for the sowing of a hectare (2½ acres) of land." The experiments narrated are of course greatly in favor of the new process. "Six landowners residing at Libourne have also issued a certificate proving that for more than ten years M. Boutin, the discoverer, has cultivated his land with the aid of his solution without manure, that each year he has obtained magnificent crops on a soil by no means fertile, and that he has even raised many wheat crops in succession."

Of course there may be some foundation for all this, and we should not be greatly suprised if the wonderful protecting and fertilizing "liquid" described was akin to the diluted *tar* often used for the same purpose in this country, and of which Mr. DICKINSON of Steuben county, was so strong an advocate. But that anything of the kind should be more than a partial and very incomplete substitute for the use of manures, appears to be problematical in the extreme.

The Suffolk Polled Cattle.—This breed, indigenous to the counties of Suffolk and Norfolk, possesses many valuable characteristics, although never introduced, as a pure breed, into this country. Its milking qualities are highly rated, and it possesses also much aptitude for fattening and fair size. Mr. G. D. BADHAM, who has given much attention to the subject, answers an inquiry in the Mark Lane Express, with the following description: "The sort of animal that we must all expect in future to see, in this class, must be as nearly as possible the color of the Devon: the character of the head is quite different, and bears a strong resemblance to the polled Galloway, from which no doubt they originally sprung, but with a *salmon*-colored nose like the Devon. Occasionally pure-bred animals will have two oval-shaped, hairless spots, occupying the usual site of slugs; but these are no proof of the animal being crossbred: the form of the head, general development, and color being the true characteristics of the breed. Red may not be the original color; and, from what I have heard from very old breeders, I believe they were dun, but without white, except at the tip of the tail and sometimes under the flank."

Mixing Feed of Different Kinds.—The Irish Farmer's Gazette remarks in the course of an editorial on the increased production of meat:

"In fattening live stock, a mixture of food is desirable, as it produces more effect than when the same kinds of food are given separately. Thus it has been found, in the course of certain comparative trials, that while it required 8 lbs. of beans, or 6 lbs. of linseed, to produce 1 lb. of flesh when the beans or linseed were used separately, yet only 3½ lbs. of *mixed* beans and linseed produced 1 lb. of flesh, the effect of the mixing of these kinds of food being to double their value as flesh-producers; so that the 2 lbs. of mixed oats and cake given by the gentlemen we have mentioned in an early part of this article to their cattle would seem practically to be about of as much value as double that quantity of oats or cake, when either is given alone."

EXPERIMENTS WITH POTATOES.

EDS. CO. GENT.—I notice in a late issue of your invaluable paper, C. O. N. of Palmer, Mass., wants to know the comparative yield of *Goodrich's seedling potatoes* with other kinds. I have grown Garnet Chili, Copper Mine, Pink Eye Rusty Coat and Cuzco for some years past. In 1862 they were planted alongside of other varieties, all receiving the same culture, and the ground and crop accurately measured, showing the following results:

Variety.	*Rate per Acre.*			
Prince Albert,	88	bushels	6	quarts.
Jersey Mercers,	91	do.	18	do.
Nova Scotia Mercers,	163	do.	20	do.
Peach Blow,	114	do.	3	do.
Garnet Chili,	120	do.	3	do.
Copper Mine,	199	do.	21	do.
Pink-Eye Rusty Coat,	216	do.	6	do.
Cuzco,	240	do.	7	do.

The result, both in yield and quality, was so satisfactory, then and since, that I have adopted the Goodrich varieties as my chief crop.

The past season here has been very unfavorable for potatoes, yet the Goodrich varieties have done well. The severe drouth stopped the growth, and matured all early varieties prematurely, while late varieties were started into a second growth by the early autumn rains, making them ill-shaped, and not as good in quality as formerly.

We have not been able to get such a yield of Garnets as have been reported in New-York State. It is the poorest yielder of the whole with us, but the quality has improved so that we now consider it nearly or quite first rate. We consider the Copper Mine about the best, Rusty Coat next, *all things considered.* The latter an excellent keeper.

The above three are valuable acquisitions, and fast superseding the Mercer, Peach Blow, &c., here, on account of better yield, and less liability to disease.

The Cuzco I consider a good second rate potato, though some persons place it much higher—think it safe to say it holds the same relative position among potatoes that the Wilson does among strawberries. For productiveness it exceeds any variety I have ever tried. A friend in Ohio reports me a yield of 90 bush. this season, the product of four tubers I gave him in the autumn of 1862. A gentleman in Indiana, to whom I sent a barrel last spring, reports the following:

Yield from 1 bush. Chilis,	10	bushels.
Yield from 1 bush. Cuzcos,	32½	do.
Yield from balance of bbl. of Rusty Coats,	15	do.

These were planted on an old meadow, without manure, the stiff sod and dry season being unfavorable to the best results.

A farmer in Morris Co., this State, reports 400 bush. per acre of Cuzcos, on inverted sod, and thinks them more profitable at 50 cents than Mercers at $1 or over.

Peach Blows, Prince Alberts and Mercers are rotting very bad. One man stored 200 bushels of Mercers, and doubts if he has enough sound ones for his own use.

The Goodrich varieties are but little affected—more than I ever saw before, though not exempt, as claimed by some. Would like to see the variety that was.

I have just obtained some of Mr. G.'s newer seedlings for trial, and hope among them to find one to supply a long existing want, viz., an *early potato, of first rate quality, large yield, and free from disease.*

Montclair, N. J. E. WILLIAMS.

Hints on the Preservation of Grain.

MESSRS. EDITORS—The undersigned has had ample opportunities to notice the loss or damage of corn and other grain, stored in the warehouses of Buffalo, Washington, and farther south, to justify him in calling public attention to the subject. Few know the waste of grain by government agents acting for the large federal and confederate armies. Hundreds of thousands of bushels of corn collected by the rebels in that part of Georgia where Sherman's army was at last accounts, were a little worse than lost during the first two years of the war; for much of this grain was fed to large droves of government hogs, and in a condition that poisoned them, probably by a poisonous fungus on or in the grain. Corn is so hygroscopic that it is much more difficult of preservation in the warm and damp atmosphere of the south, than in the colder and dryer air of the north, and therefore the southern climate is the better section in which to learn from experience and observation how to keep this grain in a sound condition the year round. Some two years ago, while looking at a mass of nearly rotten government corn, a young man remarked to the writer: "Dr. Lee, if your teachings in the State University on the subject of preserving grain, and other articles of food, had been known to government agents, this would not have happened." The reply was, that science is slow in reaching and lodging in the heads of politicians and grain speculators.

Grain will never be properly or safely preserved in our American climates, until we adopt the practice of Julius Cæsar and other Roman generals, who led large armies to the conquest of many nations, and mostly in hot climates, where grain is kept with the greatest difficulty. The system was *old* in Egypt when Joseph stored up bread-corn in seven years of great fruitfulness, to feed unknown millions during seven years of blight and sterility.

It was probably old in Persia, when Cyrus found out ways to march two great armies into the city of Babylon at once, and nearly destroyed it; and yet this system is hardly known to one grain-grower in a thousand in this land of books, schools and colleges. Spain retains some of the old Phœnician ideas and practices; for Bonaparte found these well-filled and sealed underground store-rooms, in which wheat or maize might be kept uninjured a thousand years. Julius Cæsar built granaries in Spain of blue limestone and Roman cement, as impervious to air and moisture when closed, as a glass bottle hermetically sealed. These rock granaries—huge stone jugs—are as perfect now as they were some 2,000 years ago. Wheat and other grains were dried perfectly in the sun just before being put up and sealed from the air. The mouth of the granary or jug had a stone stopper and that covered with good cement and pitch. How could dry wheat or corn ever begin to hurt in so dry an atmorphere? Without knowing anything about chemistry and the laws of germination, fermentation and decay, the ancients learned very early how to store away and preserve indefinitely the raw material for making their daily bread.

Brick, burnt nearly to vitrification, are as impervious to air and moisture as glass. Indeed glass is made of clay in some places, and in Syria, Babylonia and Persia common farmers dig pits in the ground, like a dry well in the Southern States, and burned the bottoms and sides, and then used them for storing grain. A layer of dry straw covers the bottom, and keeps the grain from touching the sides, and when full the pits are covered tight. Many hide provisions and goods in the South in this way, to my knowledge. Southerners are learning many a lesson not taught in colleges, which their posterity will never forget.

Washington, D. C. D. LEE.

Importance of Foresight to the Farmer.

FORESIGHT in agricultural operations is indispensable to prosperity, as much so as in any other pursuit on earth. It requires but very little penetration to see beforehand how essential it is to make the most of every favorably season to clean and cultivate the land; yet the autumn, which is proverbially the finest quarter of the year, passes by, and not one farmer in ten makes any preparation for spring crops; although year after year they are inconvenienced and are continually behindhand in planting on account of the wet weather, which usually prevails, and hinders them from doing what, in many instances, might have been better done in the dry, cool and bracing time which precedes the winter. Stone picking, draining and a great deal of plowing can be much easier got through when the soil is sound to travel over, and any piece of naturally raw, wet land, drained now, and the surface cleared of all weeds and refuse matter, and then well plowed, would produce a better crop by not plowing again, but merely cultivating by harrowing and drilling the seed in the first few fine days which occur after the frost and snow break up. All ground intended for any kind of root crop ought to be plowed up deep against winter, for a soft and mellow soil must be obtained; otherwise disappointment will surely result; for if land which has not been exposed to the action of frost, or to the sun and air, and wetted and dried till brought to a perfect tilth, is planted, the first spell of drouth will draw all the moisture out of the soil, and the bulbs will cease to grow, and becoming tough and almost as hard as sticks, will not start to grow any more, and Swedish turnips will run to long necks and be worthless, the common turnips become bitter, and in short, neither beets, carrots or any of the root species, will flourish if on raw, cloddy ground; and if it is so in the spring, either through not having laid dry and been exposed to the action of frost, or through having been trodden and mauled about while wet, no amount of harrowing and rolling will produce the fine mould absolutely necessary, before it is too late, for aught but the common turnip, and perhaps for that also, for the clods though crushed and broken will still be harsh and hard, even if no larger than beans or peas. By looking forward, and keeping all the work beforehand, as much as possible, there is not any need to tread the land when too moist, and by making every improvement, and doing all that is possible in the beautiful weather of the American fall. Crops would be amazingly increased, the farmers astonishingly enriched, and the whole community benefitted by the extraordinary greater amount of produce brought to market, and the wealth of the country at large would double, treble and quadruple by the surprising increase of dairy produce, meat, corn, &c., that this better system of cultivation would allow of being exported. J. B.

Seasonable Hints for the Housewife.

Sausages.—Take fat and lean meat, cut off the rind, and season as follows:—To twenty pounds of meat add eight ounces of sage and a teaspoonful of ground black pepper. Stir well with the hand; pack in tin pans; when full dip a cloth the size of the top of the pan in melted lard, and spread over the pans, and turn them together, and place them in a cool place. The leaf fat should never be used in any kind of sausages under any circumstances; it is a great waste of lard, and would make the sausages too greasy.

Lard.—The leaf lard should be tried separately from that which comes off the inwards, and kept for summer use. One year ago we tried our leaf lard, and when cooled sufficiently, strained into tin pans and let it stand until cold enough to run; turned it into a tub having a close cover; when entirely cold spread a sheet of white paper over the top of the lard, and placed on the cover, and set in the store-room up stairs. The first of May removed it to the cellar and set it on a shelf four feet from the ground. (If the tub should stand on the cellar bottom, the lard would mould.) Took out the last of the lard the other day, preparatory for this winter's lard, and found it as sweet as the day we placed it in the tub. Lard should always be tried in an iron vessel, and never salted.

Curing Hams.—After trying various ways of curing hams, we prefer the following as cheapest and best:—As soon as the animal heat is gone, rub the hams thoroughly with hot salt, pack them edgeways on a large table in the cellar, let them stand three or four days and repeat the process, and let them stand as much longer. Then smoke and hang them in a cool place. If not used up before warm weather, cut the ham in slices the same as for frying, and fry until nearly done. Pack in a stone jar and turn the fat fried out over the slices, having as much as two inches thick over the top of the meat. Cover the jar air tight and set in the cellar.

Salting Pork.—After the bone and lean has been removed from the broadside, cut in pieces about ten inches square. Place a layer of salt on the bottom of the barrel, and then a layer of pork (with the rind down) and so on until the whole is packed. After standing a day or two make a strong brine, and turn over the pork enough to cover it. We have always cured our pork in this way, and have never lost any; it has kept perfectly sweet.

To Prepare Beef for Drying.—Cut the piece lengthwise of the grain, not too large or too small, rub each piece separately in cold salt, and place it in a large wooden bowl or dish-pan—or in any suitable vessel that will hold the beef; and then another piece, and so on until it is all nicely packed; cover it up, and set in a moderately warm place; let it stand a week, then smoke it, and lay a few pieces of it at a time on a dripping pan (after it has been well drained) and set in the oven, and let it remain until just heat through; then hang up around the stove and dry as quickly as possible.

Buckwheat Cakes.—Buckwheat cakes are better to be mixed with a part milk, even if raised with yeast. But the following mode is preferred in our family: Take 1 quart of buttermilk, 1 quart of water, a teaspoonful of soda, and a little salt; stir in flour sufficient to make a thinish batter, and let it stand over night. In the morning add a half teaspoonful of soda, and flour to make it thick enough to fry. Bake on a hot griddle until a nice brown. When done the cakes should be placed in a dish that can be covered without the cover resting upon them, as it has a tendency to make them heavy. A large turreen is the best dish to place pancakes into.

Fried Cakes.—One teacup of thick sour cream, 2 teacups of butter or sour milk, 2 teaspoonfuls of soda, a teaspoonful of salt, and 1 teacup of sugar; mix well. Roll half an inch thick; cut in strips, twist and fry in hot lard until done; season with ground cinnamon or spice. The cakes will be the better for standing an hour or two, after they are mixed, before frying.

In conclusion we say to the friends of the Co GENT. that we make the same offer we did in a former number, that we will send over 170 of our family recipes, free of postage, for 30 cents. Address

Fabius, Onondaga Co., N. Y. MRS. E. A. CALL.

THE CHESTNUT--ITS CULTIVATION, &c.

The chestnut is one of the most majestic trees in the American forest, remarkable, like the oak, for its broad extent of shade. In some parts of the country it is one of the most common standards in the field and pasture, having been left unmolested on account of the value of its fruit, and the comparative inferiority of its timber. The foliage of this tree is dense and flowing, and peculiar in its arrangement. The leaves are clustered in stars from five to seven, on short branches that grow from one of greater length. Hence at a little distance the whole mass of foliage seems to consist of tufts, each containing a tassel of long pointed leaves, drooping divergently from a common centre. The flowers come out from the centre of the leaves in the same manner, and by their silvery green lustre give a pleasing variety to the darker verdure of the whole mass. When in full bloom, whether in the field or forest, no tree surpasses it for beauty and grandeur. It is of rapid growth, hardy, and flourishes in almost any soil.

There is no difficulty of raising the chestnuts from the seed if proper precautions are taken in gathering, preserving and planting the seed. The chestnuts which are designed for planting should be gathered as soon as they are fully ripe, and the largest and plumpest should be selected. They should be immediately placed in mould or sifted earth, and put away in a cellar, or buried in the ground, out of the way of the frost, rats and children. Be sure to use earth enough about them to prevent them from heating. When the spring opens, prepare a piece of ground by pulverizing and plowing it deeply, and plant the seed in rows three feet apart. They should not be covered deep, else they will rot in the ground. Half an inch of covering will answer every purpose. If you wish to have them grow straight and thrifty, they must be well hoed after planting. They may remain in the nursery row two or three years—the tap-root should be cut with a sharp spade. They will then throw out side roots, and will endure transplanting the next year all the better. There is no difficulty in transplanting chestnuts if the tap-root has been cut off a year or two before.

Many people complain that their chestnuts are stunted in their growth, or that they grow crooked. This may be remedied by cutting them down even with the ground so soon as they have become stout enough. They will then throw a nice straight shoot, that will grow very rapidly, and very little, if any, time is lost in making a large tree. The whole nourishment from the roots must be thrown into the one shoot by cutting or rubbing all others off.

There is a variety—the Spanish chestnut—the fruit of which is much larger, near the size of the common horse-chestnut, which flourishes in this vicinity, and the fruit readily commands from $2.50 to $3 per bushel. Young trees of the Spanish chestnuts may be obtained at almost all of the nurseries. A few chestnuts may be set around in the borders of the pasture-fields and cultivated with profit.

Poughkeepsie, N. Y. C. N. B.

ALBANY, N. Y., JANUARY, 1865.

☞ The New-Year once more invites the mutual interchange of congratulations and kind wishes. As some one has lately remarked, it is a sort of common birth-day for us all: we recognize at its approach that guiding Hand which directs the planet in its course and aids the sparrow in its flight; we look again to the fulfilment of the great promise that seed-time and harvest shall not fail.

"The resources of our country," as it was remarked in the leading editorial of "THE CULTIVATOR" on the first of January one-and-twenty years ago, "are every year more and more developing themselves. Spreading over an extent so vast, embracing so many varieties of soil and climate, partial failures of crops may indeed occur; but such a failure as shall seriously affect the aggregate amount, or endanger the bread of the nation, is scarcely possible." If this was true, when written, still more applicable is it now. He who should have prophecied in 1834, when this paper was established, or in 1844, when the above extract appeared, the growth and development which characterize our agriculture, and all our industrial interests, our population and our prosperity, in these closing moments of 1864,—would have found but few to credit the augury. And never had we greater reason for confidence that while contingencies of season may somewhat affect the grand total of our products, still there will be "enough and to spare"—no fear of famine, no cries of want, no serious prostration of our producing capacity. "It is in the power of the farmers of this land," that article continued, "to convert it into one vast garden, to make it the granary of the world. Let us see that while prosperity advances, the mind does not suffer; that while riches increase, the man, the immortal, is not neglected. We have been anxious to convince all, that knowledge—knowledge of mankind, of himself, and in particular of his professed business, was essential to success in any pursuit, and that ignorance and successful agriculture were incompatible."

We may say with truth that the generation to whom these words were addressed have now nearly passed away. Others are holding the plow, in the fields they used to till. Others are driving the mower and reaper, where they swung scythe or sickle. In States that were then unbroken prairie, are blooming the gardens of many a happy home; and New-York and New-England, and old England and Europe, are receiving millions of bushels of wheat, and pounds of salted meats, from a territory in which the December blasts were then unmingled either with the smoke of cities or the breath of locomotive and steamer.

But, in the meantime, has that progress been effected in "converting this land into one vast garden," which we might have hoped? Does the new generation that has arisen, manifest that determination to improve, that thirst for a wider and deeper knowledge, which would be anticipated as the means of acquiring knowledge have multiplied? With all the evidences of more intelligent practice and more efficient labor which we trace as the years go by, can we yet be sure that our Agriculture has made strides as great as those which have marked the history of other pursuits, and our advancement in population and wealth?

Such questions as these are appropriate for the opening year. They should receive the candid consideration of all thinking men who see, in this great Art to which we are devoted, the mainstay of our national strength, and the fountain-head of our commercial and mechanical thrift.

We hope, with the present number, to renew our intercourse with all those to whose homes this sheet has been a monthly visitor during the past year. To them we extend our thanks for their past countenance and many favors, and the assurance that nothing shall be wanting on our part to render the acquaintance as pleasant and profitable for them in the future as we trust it has been in the past. And to the thousands of new friends at whose firesides this may be our first introduction, we offer a no less sincere and cordial welcome. To go back to the pages from which quotations have already been made, "we feel grateful to all who promote the circulation of our journal, because in that circulation we think we see proof that agricultural inquiry is extending, and that amidst the crowd of competitors for public favor, and of co-laborers in the broad field open for the diffusion of agricultural knowledge, THE CULTIVATOR still retains its high place in the affections of the tiller of the soil."

In conclusion, we invite attention to the statement of Terms, etc., upon the last page, and solicit the co-operation, during the first months of the opening year, of all who are inclined to reciprocate our Happy New-Year for them, by doing something to render it a happy year for us.

Massachusetts Agricultural College.—Judge FRENCH, long and favorably known as an agricultural writer, author of "Farm Drainage," formerly corresponding editor of the New-England Farmer, and for many years a more or less frequent correspondent of our own, was elected President of this institution at a meeting of the Trustees, Nov. 29th. The selection is an excellent one, and our friend will please accept our best wishes for his entire success in the new and arduous field of labor now opened before him. We trust the arrangements to be made, are such that he may devote his whole energies to the cause, and are confident that we need not bespeak for him the hearty co-operation o the Board over which he is to preside, and of the agriculturists of the State.

Cochrane's Farm Book-Keeping.—The advertisement of this excellent work has created a considerable demand, and we have now ready a new supply of the blanks—Ledger and Day-Book, which are sufficient to record a year's transactions upon a farm of ordinary size—price, by mail post-paid with Manual of directions, $3.

Agricultural Societies in War Time.—To show whether the Winnebago (Illinois) County Agricultural Society is, or is not, in a prosperous condition, the Secretary states that its Treasury was $7,000 in debt four years ago. Nearly a thousand dollars of additional real estate has since been purchased, and $1,600 will cover its entire indebtedness to-day.

The Annual Register for 1865.—All orders received in advance of publication have now been filled, and those sent by mail should have reached their destination before the publication of this paper.

The table of contents advertised, although not including several of the closing chapters in the ANNUAL REGISTER, is sufficient to show the principal articles, and nothing farther need be said except that those who have already examined it, do not hesitate to speak of its character as comparing most favorably with that of any previous Number,—which is perhaps the highest compliment it could receive. We are now able to supply it singly or in quantity with promptness, and shall be obliged to any of our readers who feel disposed to bring its merits to the notice of their friends. Clubs for either the COUNTRY GENTLEMAN or the CULTIVATOR for 1865, entitled also by our published terms to receive the ANNUAL REGISTER, will be furnished with it at once, on receipt of their subscriptions, without waiting for the opening of the new year.

Thatching Buildings.—A gentleman from Iowa writes me, inquiring as to thatching buildings, requesting an answer through the COUNTRY GENTLEMAN. When abroad I saw frequently the thatched buildings, stacks, &c., and many of the buildings must have had the covering on for very many years, and it was still useful as roofing. The manner of putting on the thatch is this: The straw should be fresh and sound, without bruises if practicable. Wheat straw is best for the purpose, though rye is used where wheat cannot be had. When long straw is made use of, the operator begins at the eaves or bottom of the roof, depositing it in handfulls in regular breadths, till the top is reached—the different handfulls being so placed endways as to overlap each other, and the upper ends being constantly pushed a little into the bottom parts of the sheaves. In this manner the operator gradually proceeds breadth after breadth, till the whole roof is covered, which is usually done to the thickness of *four or five inches*. To retain the thatch in its place, short sharp-pointed sticks are occasionally thrust in, in a slanting direction upwards—but as the water is apt to follow the course of the sticks, it is a better practice to make use of ropes or twisted straw for the purpose, and the thatch carefully prepared and secured, will last for a long time. This is a brief outline of a thatch upon a stack or roof of building. The inquiry is made, how long will a thatched roof last? If made complete, five inches thick, and carefully attended to, it will last as long as the wooden erection which it covers. I inquired a few days since of an English gentleman from Canada, as to the durability of thatch roofing in Great Britain—he said *they will last for ages*. Where straw is as plenty and cheap as in Iowa, I should think a thatched roof a good investment. J.

Plowing and Plowing Matches.—In going to get a glimpse of the plowing match at our State Fair at Rochester, we met at the border of the field a Canadian farmer just turning away with a friend, in great disgust, and earnestly asking him "whether they called *that* plowing in New-York?"

The incident is brought to mind—together with the undoubted fact that the standard of good workmanship in the performance of this operation, is far too low among us—by the numerous reports of plowing matches which come to us at this season in every issue of our Canadian exchanges. The papers are full of them. About a dozen are reported in the last number of the Canadian Farmer, some under the auspices of county societies, others conducted by associated towns, and several by single towns—all attracting considerable competition and large attendance.

It is by such encouragement as this that good plowing can be promoted here; and if our County and Town Societies were more awake to the means of usefulness they might command, and more active in the efforts they put forth—they would find a legitimate field of exertion in this and other similar directions which is as yet but poorly occupied, and too often, we regret to say, entirely over-shadowed by far less appropriate or serviceable undertakings. We crowd everything into a few hours or a single day at the "Annual Fair," and then all interest in the Society is lost until another year comes around; indeed we are fortunate if the "Fair" itself does not go mostly into the hands of the horse fanciers. The chief Show of the year should be strictly agricultural, and the Canadian system of plowing matches, turnip matches, and so on, at other times, is one certainly worthy of imitation.

Statistics of Agriculture in Illinois.—It is gratifying to perceive that progress is manifesting itself so widely in the interest excited by this important branch of investigation. WILLARD C. FLAGG, Esq., of Madison County, Illinois, sends us the Blanks prepared for the collection of Agricultural Statistics, in that, and hereafter in other counties. All the different crops are included, in a systematic way, horticultural as well as agricultural; animal products are very completely classified, and other columns are devoted to the number, value and material of the houses, barns and stables annually erected, and the extent of fencing carried out, whether rail, board or hedging. It is difficult to suggest any point in which these schedules can be rendered more complete; indeed such suggestions can only arise from experience in their use. They seem to cover *the whole ground*, and in about the manner in which we may perhaps ultimately hope to have the farm and orchard and stable statistics of every State, yearly gathered in. These schedules include *one hundred and twenty columns*, in which information is called for.

If we were to hazard any criticism whatever, it would be to repeat the query that occurred to us when similar schedules were prepared in our own State—namely, whether in view of the difficulties attending the inauguration of an annual system of collecting these statistics,—it would not promote the success of the endeavor at first somewhat to *reduce and simplify* the figures and facts sought—omitting much that may be hereafter inserted when the system is once fairly established, and only beginning with the leading staples concerned, and about the importance of which all are agreed. Others have been of the opinion that it will be as easy to get at all the minor points at once, as it would be to confine the schedules as above proposed. It is certain that the mode of collecting statistics adopted in this State has *not* succeeded; but whether the failure is in any degree owing to having attempted too much at the outset, we cannot undertake to pronounce. We are eager to see an entering wedge inserted, and, continuing the comparison, should hope before the lapse of many years to make this wedge a large and effective one—but from motives of policy we might be inclined to start with getting in the little end first, and to make that as pointed and concise as possible.

Death of Richard Booth of Warlaby.—Many will learn with regret, says the North British Agriculturist, Nov. 2d, that this distinguished breeder of Short-Horns and most estimable gentleman, who has been confined to the house for about two years, died on Monday the 31st ult., about two o'clock.

Devon Cattle.—Mr. WALTER COLE, Batavia, who took the first prize on Devon bulls at the recent State Fair at Rochester, has now purchased the bull-calf "Shakespeare" from the herd of ARTHUR GILMAN, Lee, Mass.

"How to Get a Farm."—A discussion was for some time carried on a year or two ago, in the columns of the COUNTRY GENTLEMAN, on the above question. It elicited the experience of many of our correspondents, and included much that was both instructive and entertaining, either to the practical farmer or to the citizen desirous of becoming one. Indeed, so great has been the interest felt in the subject, and in the views of it that were thus brought out—that the intelligent author of "Ten Acres Enough" has been led to prepare a volume about it—based upon and affording a *resume* of the discussion referred to, and summing up, together with it, a review of the more prominent openings for agricultural enterprise which are now attracting public notice. His previous work has been a great success, and the present* appeals to quite as wide an audience, and can scarcely fail to be received with an equal welcome.

The readers of this paper have a peculiar interest in it, as carrying on and bringing to their appropriate conclusion the arguments and statements first published in our columns. And although we believe our subscribers to be, as a whole, quite as permanently established and conservative as is possible for Americans—undoubtedly there are those among them wide awake for some of the new openings which this volume describes, and others who have friends desirous of obtaining just the sort of information it presents. We cheerfully commend it to their notice.

Aside from its other contents, the history of the Homestead Act is given, together with its provisions, and "numerous successful experiences of many who, though beginning with little or nothing, have become the owners of ample farms."

Grape Literature.—A correspondent in Riley Co., Kansas writes:

"I have been engaged for some years in testing the different varieties of grapes in our climate, and have taken half a dozen agricultural journals for the purpose of getting information upon that subject, but really there is so little said upon the subject that I will try others. There is no subject connected with agricultural industry of such importance as that of grape culture, upon which the mass of the people are so ignorant. Nor is there any branch of agricultural industry that is now claiming the attention of the million, that the people are as anxious to obtain information upon; yet if most of the editors of agricultural journals give a single column upon the subject, they appear to think that their readers desire no more. The very fact that so many queries are propounded to editors, ought to be evidence of the great desire in the public mind for Grape Literature."

Our correspondent goes on to argue that there ought to be at least one, if not a dozen Journals in the United States (and thinks they would be well supported,) devoted exclusively to the Grape. While agreeing with him entirely in its importance as a fruit of general use, and intending fully to give it at least its due proportion of space and attention, we cannot but differ with him as to the number who consider it a matter of supreme importance, or who would support a periodical devoted to this subject alone. There are several good treatises, among which we may mention the recent work of Mr. FULLER, which cover the ground of its culture very ably. Those who are conversant with our agriculture and horticulture, know that in both there are periods of great excitement on particular subjects, which lasts a little while and then dies away. The editor of a Journal who takes advantage of such periodical fashions or manias, to pander to them by fanning the flame,—to give up everything else and follow them mainly or alone—incurs the serious responsibility at least of being likely to mislead the public as to their real importance, relatively to other matters, and forgets that his duty is equally concerned with all. Allowing for the Grape everything our correspondent says in its behalf, we yet doubt whether its importance, pecuniarily or as a matter of luxury, (he speaks of the grape "for farmers' use only," and not for the large vineyardist,) exceeds or equals that of the apple; but no one thinks of an "Apple Grower's Journal." We are of course glad to furnish all the information we can as to the culture of the vine, new varieties, &c., but should be indisposed to favor any undertaking, the tendency of which would be to lead farmers or others to spend too much money in this direction, with the almost absolute certainty of disappointment in the returns obtained. Any one who doubts the correctness of this position, has only to look back a few years when Dwarf Pears occupied a similar place in the public favor, or to review the often quoted history of the Morus multicaulis. Not that we think there is any immediate danger of a Grape fever, like the above, or like the Poultry fever, or the Sheep fever of 18— and of the present time,—or half a dozen other things that might be quoted,—but we cannot help referring to these precedents when occasionally an enthusiastic devotee of some particular kind of fruit, or stock, or farm product, urges its claims as overshadowing all others.

Fruits to be Named.—B. R. HUDSON has sent us a few specimens of fruit for identification. Where but single specimens are furnished and sent several hundred miles as in this instance, it is difficult to speak with confidence, as they vary in appearance and flavor, and the peculiarities in the growth of the tree are unknown. A part of these are doubtless local fruits. Not being numbered we can only describe them briefly. One is a smooth, dark red apple, considerably resembling the Fameuse in external appearance and flavor, but without its white flesh. Another resembles in size, form and flavor, Ramsdell's Sweet, but differing in some points. A third is like the Sweet Russet of New-York, with very little russet on the skin, being a large, conical, spongy-fleshed, good, sweet variety. A fourth, a light, white-specked ribbed apple appears to be the Domine. The specimen of the pear was too much decayed on its arrival.

The first mentioned apple we think a valuable one, and we would like to examine it further.

Smut in Indian Corn.—My crop of corn looks well in the field this season, but in gathering it I find a much larger number of blasted ears than in ordinary seasons—a black fungus growth taking the place of ears of corn. I think twenty per cent. not too large an estimate for the damage. My theory for the cause is, that it results from planting *old seed*. Last year our crop was nearly entirely destroyed by the frosts of August, and what was sufficiently matured for seed, had the germ destroyed by the extreme cold of January, so that we had to resort to the cribs of old corn for seed last spring. The consequence was musty old seed, and a crop of *smut*. I have ten acres planted with new seed from Indiana, and that portion of my crop is about as free from the blight, I think, as in usual seasons. Perhaps the extreme drouth is accountable for part of the damage, but I believe the cause mentioned above is chargable with most of it. The experience of my neighbors is, very generally, the same as mine. If I am correct in my theory, it is another argument for sound, *fresh* seed. W. P. H.

Vermillion Co., Ill.

* HOW TO GET A FARM, AND WHERE TO FIND ONE: Showing that Homesteads may be had by those desirous of securing them. By the author of "Ten Acres Enough." 1 vol. 12mo. Cloth, $1.75. New-York: Jas. Miller, 522 Broadway. [See advertisement; the book is also for sale at this Office.]

Inquiries and Answers.

Smoke-House.—In answer to an inquiry for a plan for a smoke-house, we give the following from a former no. of our ANNUAL REGISTER:—"It is built of brick with a stone basement for ash-pit from the smoke-house above, and through which the ashes may be poured down. For smoking the meat, a fire is built on this ashes, where it may be perfectly control-

Smoke-House and Ashery.

led, and the smoke rises above. A ventilator surmounts the building, which is closed or opened at pleasure, to prevent the dampness so common otherwise with brick smoke-houses on the one hand; as well as a too free escape of smoke on the other."

Converting Cider into Vinegar.—I have thirty barrels of cider which I desire made into vinegar. How shall I proceed to accomplish this soonest? Should the cider be left *whole*, or be reduced? and what else? SUBSCRIBER. [A skillful housekeeper, who has tried various modes, says that the best vinegar is made by exposing the barrels, not quite full, and with the bung out, to the air for one year. This forms the the best vinegar she has ever made. The common addition of molasses lessens its fine, clear character. She makes no addition of water. The barrels during summer should be placed on the south side of a building, where they may receive the heat of the sun. The long time thus required to manufacture the vinegar will be an objection to some, but all that is necessary is to keep a supply one year before hand. We would propose that our correspondent try other modes on a few of his barrels, such as adding a quart or a gallon of molasses, a similar quantity of vinegar, diluting slightly with water, adding strips or pieces of brown paper, &c.]

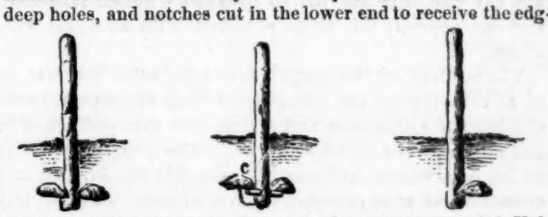
Blacking.—Can you not give your subscribers one or two good receipts for a good *shining blacking?* Why shall the farmer and his daughter be confined to tallow and grease for their shoes, when a handsome polish adds so much to the appearance of the foot? A FARMER. [Directions are given for forming a varnish of the character wanted, on page 122 of the ILLUSTRATED ANNUAL REGISTER for 1864. We have for some years used a similar varnish, varying slightly, but probably not materially, in its composition, and found it to answer an excellent purpose for boots and shoes, keeping them black, smooth, and in good order.]

Spaying.—Will you or some of your correspondents, inform me through your invaluable paper, the mode of spaying animals? Perhaps there is some work you can refer me to—if so, where can it be had, and at what price? A SUBSCRIBER. *Benton, N. Y.* [We do not know of any work to refer you for plain directions for spaying cows. The subject was much discussed in THE CULTIVATOR, a dozen or fifteen years since, and in the vol. for 1849, we published full directions from a French veterinary surgeon, but they would be of little use to any one but a surgeon. One correspondent says it "is performed in the same way, and may be done by any person in the habit of spaying sows." If any one can furnish plain and practicable directions we shall be glad to receive them.]

Spreading Horns. — How may I spread oxen's horns—by scraping on the inside or outside of the circle? C. *Morris Co., N. J.* [On the inside—that is, on the side opposite to which you wish them to turn.]

Michigan Lands.—Would you be so kind as to inform me through the columns of Co. GENT. what prospect there is in Michigan State to buy land and make a home for a man with small capital—one that is acquainted with backwoods life? Information on that point would be thankfully received by AN OLD SUBSCRIBER. *Essex Co., Mass.* [We submit the foregoing inquiry for the responses of our correspondents in the State referred to.]

Securing Fence Posts from Floods.—I live in the valley near the Canadice Lake, and the inlet to the lake runs across my farm, and during high water my fences are floated off. Board fences will not stand, the land heaves so badly in places. Rail fence stands the best, but when the ground is soft the stakes will pull out, and off goes the fence. I think of driving stakes of yellow willow in every crook of the fence. Now when shall I do it and have them live? The ground is not wet but mucky—will do to plow, and raises large crops. Elms and basswood thrive well. D. B. WAITE. [Fences may be secured from floods in different ways. If the posts are set in wide and deep holes, and notches cut in the lower end to receive the edg-



es of broad flat stones, as shown in the cuts on page 154, Vol. XXII of the Co. GENT.. filling the holes solidly on these flat stones, will secure the posts from being easily moved by water. If there is much current, it is desirable that the fence be placed as nearly as practicable in a line with the current. Willows, by taking rooot, will afford substantial security if the fence is attached to them after they have become large enough and well established. The cuttings of the willow may be inserted in the autumn or spring. Pieces an inch or more in diameter, may be sharpened at the lower end and driven into the ground. They will be more likely to live if they do not project much above the surface.]

Books.—Several inquirers are informed that the second volume of Todd's "Young Farmer's Manual" has never been published. There is a prospect that this, or another work from the same author, may appear during the coming year.—— We are obliged to state again, for the benefit of many who have apparently overlooked previous notices, that we bind the ANNUAL REGISTER in triennial volumes, under the title of RURAL AFFAIRS, and that the edition under the latter title is printed on *larger* and finer paper, so that it is quite impossible to bind the numbers of the REGISTER, as they annually appear, in the same form. These volumes of RURAL AFFAIRS are now for sale (price by mail, post paid, $1.50 each) comprising the Annual Register complete, to and including 1863. The 4th volume will therefore contain the numbers for 1864-5-6 when issued; and complete sets to the present time, consisting of the three volumes now out and the numbers in paper for 1864 and 1865, are sent by mail for $5. We can also supply the numbers from 1855 in paper covers, at 25 cents each, excepting 1857, which is for the present out of print.

Goodrich Seedling Potatoes.—I observe the inquiry of C. O. N., in a late number of the Co. CENT. I have cultivated to some extent the Garnet Chili, the Pinkeye Rusty Coat, the Coppermine and Cuzco. The latter is by far the most productive. I have raised over an acre of them this year, and measured two different portions of a few square rods each. At the rate of the measured portions, they yielded five hundred and sixty bushels per acre, in both instances. The Garnet Chili has usually yielded about two-thirds as much. The two other varieties have not been usually quite so productive as the Garnet Chili, and are about as much so as the Prince Albert. The Cuzco is not generally regarded as first rate in quality—some like it well and others dislike it—but for feeding stock it is undoubtedly the most profitable of any sort. It does not appear to be much liable to the rot. J.

Root Crops.—Which do you consider the best crop on a limestone soil, turnips or carrots, —labor at present prices—where they are to be fed to cows, young stock and colts, or horses that are used but little? What kind of turnips would pay best? N. *Williamstown, Vt.* [On a shallow soil the turnip will succeed best; in a deep soil the carrot willl be most profitable. The round or flat turnip contains but little nutriment, consisting almost wholly of water; yet for the purpose of mixing with dry food in winter, and thus promoting health and digestion, it may possess much more value than the mere nutriment it affords. This remark will apply to root crops in general. The Ruta Baga or Swede is less watery, is worth more for feeding, and the crop is more uniform and reliable. It is valuable for feeding fattening cattle, but not so well adapted for milch cows, on account of the slight taste it imparts to milk and butter. The carrot, bushel for bushel, is more valuable than any kind of turnip, being excellent for feeding horses in moderate quantity, and, when fed to cows, producing rich, yellow butter, even in winter. In feeding all roots, it is important that they be clean, and the use of a root-slicer is valuable.]

Churn.—Can you tell me where I can get a really good churn, suitable for a farm where there are 7 cows milked on an average? I want one less laborious than the common upright dasher, if I can get it? G. M. *Ripon, Wis.* [Any of the revolving churns are easier to work than the upright dasher. We have found Kendall's simple churn, after several years, the easiest for common management, for a quite small dairy. The thermometer churn works on a similar principle, with the additional advantage of a perfect control of the temperature. It is probably the best hand-churn that has been long tried. Where manual labor is scarce, a tread-wheel worked by a large sheep (South-Down or Leicester,) will doubtless be found most economical, and has been tested in many places by years of trial. For this mode of churning, the common dash-churn answers well. All these churns are sold at the agricultural warehouses in our principal cities.]

Pear Blight.—Will you please give us your views through your valuable paper, at your convenience, of the cause of pear blight, and remedy, as it is very destructive out here. J. M. H. *Galena, Ill.* [The fire blight in the pear is a disease that has puzzled everybody without any satisfactory cause being assigned; and although those who have seen but little of it often think they have discovered the cause, yet the more it is investigated by cultivators, the more they are satisfied they know nothing about it. As a general rule trees which grow with unusual luxuriance are more liable to its attacks than such as possess moderate, healthy vigor. Some sorts are more liable to it than others—the Seckel nearly always escapes. When it attacks a tree, (which is indicated by certain portions or limbs dying suddenly, and becoming black,) the diseased parts should be immediately cut off at some distance below, and burned or buried. This will not always save the tree, but it may as well be cut to pieces as to perish wholly by blight and spread to others.]

Alderney Cattle.—Please inform a subscriber what an Alderney heifer will cost, either one or two years old? How much butter will they give per week in their prime? Will it pay to buy an Alderney instead of Short-Horn for a butter cow, if the cost is double for the Alderney? I would like to get the best cows for butter. My farm is not rich, but affords good pasture and fair hay, and is too hilly to grow corn much. J. P. G. *H. Co., Kentucky.* [The price of Alderney heifers varies very much here at the East with the particular merits, proven or supposed, of the individual animal—its age, etc. Your best way would be to correspond with parties advertising. Our opinion of them, although very high, is not such that we should care to pay double the price of a Short-Horn, unless under peculiar circumstances. Very large products of butter per week from the Alderneys have been published, but these statements are of course much above *the average*. Their milk, however, is very rich, and makes superior butter—they are therefore better adapted to localities in which there is a ready market from fastidious purchasers, who are willing to pay a "fancy price" to secure the very best, rather than where all butter of good quality sells at about the same price.]

Osage Orange Hedges.—Where can the "Osage Orange" plants or seeds be got at this time? A few years ago the "Osage fever" raged here, and owing to the want of attention the hedges were pronounced a failure by our farmers. In all cases where they were properly pruned they have done well, and are a "success." C. Y. P. *Terre Haute, Ind.* [The supply of Osage Orange seed was procured mostly from Texas. The rebellion cut it off, and hence few plants have been grown the last three years. If any one has plants or seeds, our advertising pages are open to them.]

Salt for Moles, &c.—One of our subscribers writes that he has found "that the sowing of refuse salt, a bushel to the acre, will drive off moles from land so treated, besides its excellent fertilizing qualities. Also, that Red Precipitate scattered on the scratches on horses, has been found an excellent remedy. I have used it for three years on a stud horse that is now 35 years old, and with success."

Keeping up a Small Farm.—What can a man do wtih a small farm, without being near a city where he can get manure to keep up his land? If he has a large farm, he can by clover and resting his fields and keeping stock, make enough manure to enrich a few acres every year, on which he can raise a paying crop. But this writing about small farms, *well tilled*, is like the people of old who could not make bricks without straw. C. L. *Pennsylvania.* [Our correspondent says he would like to hear from practical farmers on the foregoing question, and we "second the motion." Meantime he may find some very serviceable hints on the subject in the book entitled "Ten Acres Enough."]

Inventor of the Horse Rake.—I see in the November number of THE CULTIVATOR, that a correspondent of the R. N. Yorker, asks the name of the inventor of the "Revolving Horse Rake." The first horse rake that was used in this town, was made by EPHRAIM PERKINS in 1811. Mr. Perkins at that time owned a farm of nearly 400 acres, mostly in grass. The horse rake worked admirably, much in advance of the hand rakes. Yet Mr. Perkins' energetic and go-a-head mind was not content with the idea of stopping and backing up every time the rake was to be discharged, and he projected a rake to *turn over* without the horse's stopping, and CHARLES GOUGE made it the 13th day of July, 1811. Jervis Phelps, a Yankee pedlar who worked for Mr. Perkins, carried the model in 1812, to Pennsylvania. Mr. Perkins sold his farm to Mr. Henry Rhodes, the present owner of the premises.

Oneida Co., New-York. STORRS BARROWS.

Oats, Corn and Cob Meal for Horses.—Were I your inquirer, F. H. A., in your paper of Nov. 24, I should not sell the corn and buy oats for horse feed. I would not have the cobs ground, but would grind the corn fine—finer than is generally desired for table use, and mix with cut straw or hay, wet sufficiently to make the meal stick. I have fed cut and ground feed for several years, generally corn and oat meal, mixed in equal proportions by bulk. Last winter I kept my horses upon the orts of the cattle manger, cut and sprinkled with fine corn meal, with more satisfactory results than have been attained in former years. GEO. WILLIAMS. *Delta, Nov. 26, 1864.*

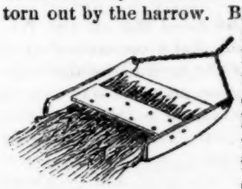
Salt Rheum.—I see an inquiry in your paper for a remedy for the cure of salt rheum. I would recommend Massena Springs, St. Lawrence Co., N. Y. I have resided here over forty years, and have known very many inveterate cases permanently cured. W. W. PADDOCK.

Poultry.—As far as my experience goes with poultry, it does not do to confine them too closely, nor put a large number into small quarters. I find it the most profitable to give them a tree to roost in, in summer, taking down all the roosts from the coop in spring, as soon as the weather will warrant their roosting out, and replace them for the old fowls when they are moulting, after the heavy fall rains set in, and then let them take their choice as to the time of turning in. No nest boxes stationary built up, but half barrels and fixtures that can be taken out to give them a thorough cleaning, is my mode for nesting places, but not under their droppings. J. B. *Newark, N. J.*

Improving Sheep.—I wish to make inquiry through the columns of the CO. GENT., of the experience of your readers in regard to the best breed of sheep for this section, taking into account the long and medium wools only. I have a small flock of common stock, that I wish to *improve* by using a buck that would be the most likely to produce such a result. Others, no doubt, are in the same situation, and want light in this matter. I should be glad to hear from any one by letter, more particulars than could be communicated through the GENTLEMAN. W. H. BENSON. *Jamestown, N. Y.*

Onions and Carrots.—I have a light loam, gravel subsoil, and clay beneath that. The land is on the bank of a lake, some 15 feet above it. Will some of your readers tell me why my carrots and onions do not come up—as also the means of starting them? A SUBSCRIBER. *Ottawa Co., Mich.*

Seeding on Wheat—Hedge Plants.—I have a piece of wheat sown last fall; there was no grass seed sown with it, and it is now too late to sow this fall; will it do to sow clover and herds-grass on the wheat in the spring, and when had I better sow it—on the snow, or wait until it is off? Must I harrow it in? Where can I get Osage Orange and Buckthorn plants for hedges, and what is the cost? What are drain-tile worth? R. *Kalamazoo, Mich., Dec.* 3, 1864. [It will answer well to sow the clover and grass seed in spring, and it will probably do better if the clover seed predominates. The usual practice is to sow on snow, or before the freezing and thawing process has ceased. This causes the seed to settle in the crevices and under the crumbing surface of the soil. If the season is favorable it will grow well. Probably a better and more certain mode would be to sow a little later, or when the surface has become dry enough for harrowing. Sow the seed and pass over the wheat with a light, very fine-toothed harrow, which will pulverize the top soil down an inch or so, cover the grass seed, and improve the growth of the wheat. A common harrow would be too heavy, and bury the seed too deep; but if no other can be had, harrow the wheat first, then sow the grass seed and roll it in with a roller. Very little of the wheat would be torn out by the harrow. Very little of the wheat would be torn out by the harrow. Brushing the seed in by means of a



frame set with brush would doubtless do well, or with a fine harrow made by driving cut spikes numerously through a plank frame like the letter V, with the point foremost, the spikes forming the teeth pointing backwards a little, to prevent clogging and to pass freely over stones. The different modes here suggested may variously succeed best according to circumstances and the condition of the soil, and discretion must be employed. Osage Orange plants have been very scarce since the present war, which has prevented the importation of seed from Texas. We do not know where they can be procured. Buckthorn plants have been sold mostly by the principal New-England nurserymen at about $10 per thousand. Tubular drain-tile, two inches in diameter, which were formerly sold at $10 per thousand, now require $15 to purchase them—larger ones correspondingiy higher.]

Liquid Manure—Grafting Grapes.—I wish you would prepare an exhaustive article on the best plan for making liquid manure vats or cisterns; also the very best plan known for grafting grapes in spring or autumn. C. M. K. *Pittsburgh, Pa.* [We have not had experience with liquid manure vats, and would invite the experience of others. The cheapest and most durable are made of masonry, with hydraulic cement. With ordinary materials they should be secured from freezing, or the cement will scale off; but with the purest and sharpest sand, (found only in the regions of primitive rocks.) and the most perfect water lime, the Rosendale for example, a cement may be made that will withstand the combined influence of water and frost. In the practice of many farmers they find it most convenient to secure all the liquid manure by plenty of absorbents, such as dry straw, dry turf, or dry peat or mold. The manure is either applied in the composts thus formed, or spread in autumn for the crops of the following season. The best mode of grafting the grape, which has been extensively adopted by nurserymen, is figured and described on page 47 of the Illustrated Annual Register for 1865.]

Improving Old Meadows.—I have an old meadow of three acres that I wish to improve without plowing; how will it do to harrow well in the spring, sow grass seed, and put on the manure that I make the coming winter, say from eight head of cattle and a horse, spread and bush down? Please tell. A. S. *Sandy Hook P. O., Newtown, Ct.* [The management proposed by our correspondent is good, and will doubtless succeed well; but it would be better, instead of drawing out the manure in spring, to draw it out during winter as fast as made, and spread it as finely and evenly as possible over the surface. The thaws and rains will carry the soluble parts into the surface soil, and render it twice as efficient and valuable as if spread in spring.]

Ditching Machine, etc.—I want a ditching machine for draining my land; it is high rich upland, apparently dry enough, but I am told draining would still improve it. Do you know of any ditching machine, and where to be had? Will hydraulic cement pipe answer in stiff clay subsoil, and where can I get the inflated core to form it? A. E. T. *New London, Mo.* [We know of no ditching machine which we can recommend from the test of full trial. The best thing of the kind we have ever used is the ditching-plow figured and described on page 296 of the second volume of Rural Affairs. Cement pipe would doubtless do well in the stiff subsoil mentioned, but if formed of continuous pipe, would require perforations for the admission of water equal in the aggregate to the size of the bore in a length of two or three hundred feet. We are unable to furnish the desired information in relation to the core.]

Exterminating Ants.—I see in your number for Dec. 1, an inquiry as to how to get rid of ants in strawberry beds. They have never troubled my strawberries, but they have been very bad in my tulips and several other places, from which I have completely exterminated them by simply sprinkling the bed thoroughly with loose dry salt, which not only kills the ants, but, as you know, enriches the soil. A. *Hazelwood, O.*

Tape-worm in Sheep.—While dressing a sheep which I had attempted in vain to fatten, I found a tape-worm more than 17 feet in length. It was not in the stomach, but in the smaller intestines several feet below, and all in the space of about one and a half feet, expanding the intestine to nearly twice its natural size. Are tape-worms common in animals? P. *Delaware Co., N. Y.* [For an interesting article on Tape-worms in Sheep, see Co. Gent. for March 17, 1864, p. 172.]

Cheese Factories.—*J. B., Chicago.* You will find a chapter on this subject in the Annual Register for 1864, which you had better consult. The usual charge for manufacturing in this State is one cent per pound, but unless you can get your neighbors to pay considerably more than this, making up the milk of 120 cows could not be a very remunerative business. Three hundred is the lowest number you can probably start on with a reasonable prospect of success.

Ag. Reports—Fences and Gates.—Where can the Annual Report of the Commissioner of Agriculture be obtained? Also, what number of Rural Affairs contains article on farm fences and gates (particularly the last?) I have not been able to find it in the numbers received of you a short time ago. E. K. Freeborn. *Easton, Ct.* [For Report of Commissioner of Agriculture, apply to the member of Congress from your district. He has a large number of copies at his disposal, and can send it to you under his frank. In Rural Affairs, vol. II, p. 271, you will find a full chapter on fences and gates.]

Turnip-Drill.—Can't some of the ingenious mechanics of this country get up a turnip seed drill that will sow two drills at a time, with a roller in front and another behind—the front one with a bulge of proper shape to fit in between the drills to keep all in place—to be drawn with a horse? I have seen Emery's and the Wethersfield drill; neither suit me, the operator has either to walk on the top of the drill or straddle it, which is very inconvenient, and with a machine with one wheel in the centre like a wheelbarrow, is very liable to slip off the top of the drill. My grandfather told me that such was in common use in Scotland seventy years ago--I mean the former kind or double one. W. S. *Sanilac Co., Mich.*

Butter.—My butter has for some months become very hard indeed after it is churned, and granulates, making it almost impossible to spread. Can any of your subscribers explain or suggest a remedy? R.

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1865 THE ILLUSTRATED ANNUAL 1865
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Number Eleven—1865.

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Beside the usual Calendar Pages, presenting calculations for the three different parallels of the New-England, the Middle and the Border States, the following synopsis will partially show the chief subjects treated, and the ground covered in the ANNUAL REGISTER OF RURAL AFFAIRS for 1865—accompanied by about

One Hundred and Thirty Engravings.

I.—COUNTRY HOMES—TWENTY-THREE ENGRAVINGS.
1. General Remarks.
2. A Small Cottage—view and two floors.
3. A Bracketted Square House—view and two floors.
4. A Plain Country House—view and two floors.
5. A Convenient Dwelling—view and two floors.
6. A Large Farm House—view and two floors.
7. A Large Country House—plans of three floors.
8. A Village Residence—view, two floors, basement, and plan of grounds.

II.—MONTHLY CALENDAR for the Nursery, Orchard and Fruit Garden—TWENTY-TWO ENGRAVINGS.
1. Work for January—Preparations for the coming Year.
2. February—Root Grafting. Manuring and Pruning, Grape-Houses, &c.
3. March—Fruit Trees, Grapevines and their Propagation.
4. April—Transplanting, Setting Root Grafts, Draining, &c.
5. May—Strawberry Beds, Mulching Orchards, Evergreens, &c.
6. June—Insects, Managing Young Trees, Grape Houses, &c.
7. July—Layering Grapes, the Small Fruits, Budding, &c.
8. August—Orchard Treatment, Fruit Gathering.
9. September—Preparing New Gardens.
10. October—Transplanting, the Fruit Harvest, Keeping Grapes.
11. November—Treatment of Trees, Fruit Bushes, Grape Layers.
12. December and its Labors.

III.—PRUNING, its Principles and Practice—THIRTY-ONE ENGRAVINGS.
1. Young Trees at Transplanting.
2. Proper Time for Pruning.
3. Pruning as Affecting Fruitfulness.
4. To Give a Desired Form to the Tree.
5. For Nursery Trees—Pruning Single Shoots.
6. Pruning Young Apple Trees.
7. Pruning the Peach.
8. Pruning the Cherry, Quince, Gooseberry and Currant.
9. Pruning Old Trees.
10. Pruning and Training the Grape.

*** *This Chapter is on a subject about which every Fruit Grower desires information, and no more complete, simple and effective directions have ever been given than are here comprised.*

IV.—THE TURKEY—FOUR ENGRAVINGS.
1. Its Natural History, &c.
2. The Wild Turkey.
3. The Domestic Turkey.
4. The Bronze Turkey.
5. The White Turkey.
6. Management—Selection, Mating, Incubation, &c.

V.—A SHEEP BARN—FOUR ENGRAVINGS.
1. Description of Plans and Directions for Building.

VI.—BEE MANAGEMENT—THIRTEEN ENGRAVINGS.
1. Queens, Workers and Drones.
2. Breeding and Swarming.
3. Artificial Swarms.
4. Surplus Honey Boxes.
5. Loss of Queen, Wintering Bees, Robbing, &c.

VII.—FARMING ITEMS AND SUGGESTIONS—SEVEN ENGRAVINGS.
1. Mowers and Reapers—Four Wheeled Carts.
2. Barn Ventilators, Harvesting Corn, Clover Hay.
3. Wheat Planting, Bean Culture, Sowing Grass Seed, Cutting Timber, Cleaning Wheat.
4. Mowing Pastures, Rocks, Rotation for Dairy Districts, Cooking Feed.
5. Marking Sheep, Choked Cattle, Ventilating Cellars.
6. Packing Vegetables for Winter.

VIII.—HOUSEHOLD MANAGEMENT—TWO ENGRAVINGS.
1. Washing and Sprinkling Clothes.
2. Washing Dishes.
3. Suggestions about a Working Dress.
4. Bed Room Essentials.
5. Items of Economy.
6. Clothing—Making, Wearing and Keeping it.

IX.—RURAL AND DOMESTIC ECONOMY—SEVEN ENGRAVINGS.
1. Grass Growing in Walks—About Conducting Water.
2. Door Cracks—Using the Broom—Corks.
3. Stencilling, Window Blinds, Ventilators for Bins.
4. Ventilators for Indian Corn in the Crib.

X.—CHEAP PIGGERY AND CORN HOUSE—ONE ENGRAVING.
1. Descriptions and Directions for Building.

XI.—THE ORCHARD AND GARDEN—TEN ENGRAVINGS.
1. Items and Suggestions in Orchard Management.
2. Laying Out Orchards.
3. Packing Apples in Barrels.
4. Training Grapes to Lay Down in Winter.
5. Want of Calculation.
6. Trimming Hedges.
7. Training Lima Beans.
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